



April 26, 2019

State of New Hampshire  
David M. Scanlan, Deputy Secretary of State  
State House Room 204, 107 N. Main St.  
Concord, NH 03301

Re: Voting System Questions and Answers

Dear Mr. Scanlan:

Hart's legacy and heritage in the elections industry and partnerships with jurisdictions across the country provide us with a deep understanding of the unique culture and processes of the State of New Hampshire. Hart is pleased to offer our innovative Verity® Voting system – designed to dovetail nicely with the State's latest standards for security, transparency and auditability. Coupled with the simplicity and efficiencies offered to voters, election staff and poll workers, the Verity Voting system is the perfect choice for the State.

As we have defined in our answers, Hart is able to offer the hardware, software and professional services specified in the State's RFI. Our solution facilitates hand marked paper ballots with the added benefit, if needed, of an ADA ballot marking device with the following hardware:

- ✓ **Verity Scan**                      Precinct-based ballot scanner
- ✓ **Verity Touch Writer**        Accessible ballot marking device

This configuration provides the State with the only unified, end-to-end voting system that is secure, transparent, easy for election staff and poll workers and intuitive for all voters. Hart's Verity solution also includes:

- ✓ **Verity Software Suite**        Election Management System with on demand ballot printing
- ✓ **Verity Central**                High-speed central scanning solution

The State's voters, election staff and poll workers will see significant improvements in every aspect of the election process with the move to Verity. A few of these benefits include:

#### **Security**

- ✓ Multi-layer state-of-the-art security. Hart incorporates a six layer "defense in depth" security philosophy – every step is secure from beginning to end.
- ✓ Protection from unauthorized access to data. All data is encrypted and digitally signed for tamper evidence. If anyone attempts to tamper with data, the system alerts elections staff.
- ✓ U.S. based headquarters, engineering and manufacturing – providing the assurance that hardware and software components have not been compromised during the supply chain process.
- ✓ All devices run in "kiosk" mode – like an ATM, only the application needed for the device can be accessed.
- ✓ Multiple redundancies of cast vote records storage for auditing, backup and recovery.

### Transparency

- ✓ Anywhere, anytime hash code download from the Verity devices, providing reassurance to all that the software loaded on the hardware is the same as what has been certified by and is on file with the Election Assistance Commission.
- ✓ Filter, view and export cast vote records for ultimate transparency.

### Innovation

- ✓ The most recently designed and developed voting system in the industry, featuring a cohesive end-to-end interface and functionality across all components, regardless of role (voter, election staff, poll worker).
- ✓ Single, unified data flow across the entire platform.
- ✓ Automation between Verity and any electronic poll book, eliminating poll worker errors.

### Simplicity

- ✓ Easy to learn, easy to use. Same look and feel across all devices, leading to rapid understanding while reducing training needs.
- ✓ Plain language interfaces, providing all users with the ability to easily understand system messages and prompts.
- ✓ Grab and go. Verity's compact size and "suitcase" design means less time spent storing and transporting the equipment.
- ✓ Full size paper ballot trail for easy voter review and maximum cost savings.

### Efficiency

- ✓ Powerful reporting and auditing functionality, including risk limiting audit capability, streamlining election administration processes.
- ✓ Enables election staff to perform routine maintenance, including testing and calibration, independently of Hart, with no annual preventative maintenance or ongoing maintenance fees required.
- ✓ No duplication/rescanning of by-mail ballots with voter intent issues.
- ✓ The choice to defer write-in decisions until tabulation.

The benefits in selecting Hart as your voting system provider will continue beyond the near-term success of implementing a new system. Hart and Verity provide long-term returns through secure and efficient voting coupled with simplicity and independence in managing elections in the State of New Hampshire.

I offer my personal commitment and that of the entire Hart team to the success of the State of New Hampshire's adoption of your new voting system. We would be honored to be selected as the State's elections partner and are ready to embark on this exciting transition to implement the most secure, transparent and innovative election solution your stakeholders deserve.

Sincerely,

Handwritten signature of Phillip W. Braithwaite in black ink.

Phillip W. Braithwaite  
President and CEO

Handwritten signature of Davi Bosch in black ink.

Davi Bosch  
Director of Sales



## TABLE OF CONTENTS

Executive Summary .....	1
Questions and Answers .....	3
• Precinct Count Device.....	3
• Scanned Images of Ballots .....	7
• Precinct Configuration .....	9
• Ballot Design and Printing.....	19
• Device Programming .....	21
• Management of Write-In Votes.....	35
• Election Results Reporting .....	39
• Security, and Cybersecurity .....	41
• Transparency .....	63
• Stage of Product Lifecycle.....	65
• Hardware – Technical.....	69
• Architecture .....	71
• Backup and Recovery, Battery .....	73
• Ballot Box Capacity/Storage.....	79
• Company Experience and Capability .....	85
• Maintenance, Training and Support .....	105
• Warranty and Post Warranty .....	113
• Cost.....	115
• Central Count – Audit .....	119



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## EXECUTIVE SUMMARY

The State of New Hampshire seeks to acquire a new voting system for paper ballot management in the State, while providing various options for the municipal election officials. The State desires the best available and secure technology for all forms of voting, transparency for all, scalability of the solution with cost-effective flexibility, ease of transport and handling, and other built-in efficiencies for optimum ease of use.

To ensure successful adoption of the new system, along with ongoing cost-effective operation across the lifespan of the system, the selected vendor must have a robust track record and comprehensive plan for exceptional customer service and support.

New Hampshire has demonstrated a strong commitment to safeguarding elections in the State. Through diligent administration of best practices and procedures, the State has taken an advanced approach to protecting elections by direct involvement, oversight and partnership with the municipal election officials.

State stewardship of the electoral process is clearly demonstrated in the due diligence during the consideration of a new voting system. This historic initiative affords New Hampshire the opportunity to step forward as an election leader in the U.S. By selecting truly modern, forward-looking election technology with robust security protocols and unprecedented ease of use, New Hampshire sets a strong example for the nation.

## AN ALL-NEW VOTING SYSTEM FOR NEW HAMPSHIRE'S FUTURE

Hart proposes to provide the State of New Hampshire with the Verity® Voting system, our highly efficient, cost-effective voting system that will instill confidence in voters and provide the State with secure, transparent voting for years to come.

Verity Voting is the newest, easiest to use, and most versatile voting system on the market, delivered by Hart, a proven partner with over 100 years of election experience. Verity was designed specifically for the way New Hampshire votes: a paper-centric system with the option to administer at the polling place or the central office coupled with the ability to easily add ADA accessible devices.



Verity is a complete, next generation voting system. All system components work together with consistent, intuitive interfaces and common workflows. The quality of the experience for election officials is designed to be as seamless and efficient as for all voters.

Because Verity is all-new, with EAC certification, your buying decision is safe – your voting system will have a longer life and deliver more value. Verity provides transparent and robust security features and user-friendly software that break the old-fashioned mold of first-generation voting systems.

Verity provides the State with efficient workflows. We are proposing our hand-marked paper ballot polling place solution for your consideration: **Verity Scan**.



Our proposed Verity paper ballot solution offers the security and transparency of a truly paper-based system. The scanned paper ballot is the ballot of record – scanning the ballot creates all cast vote records. Verity configurations offer streamlined end-to-end election management with intuitive, efficient software.

With the low-cost, simple Verity paper ballot solution, voters mark paper ballots by hand or with the ADA-compliant **Verity Touch Writer** ballot marking device. Cast vote records are created when the voter scans the marked ballot with the Verity Scan in-person digital scanner.

Elections staff can scan absentee/by-mail ballots using Verity Scan, or with Verity Central (a centrally located, high speed scanning/adjudication system).

## TRUSTED PARTNER

The State of New Hampshire can be assured that Hart has the experience and capacity to deliver on the solution proposed herein. Founded in 1912, Hart has been working side-by-side with election professionals across the U.S. for more than 100 years.

Currently serving more than 800 jurisdictions, Hart is the voting system solution provider for two statewide systems including the State of Hawaii and the State of Oklahoma. We also provide full-service voting solutions on a similar scale to two of the five largest counties in the United States (Harris County, Texas and Orange County, California). These large jurisdictions rely on Hart to manage complex, large-scale voting systems and to conduct support services when needed – training, repairs, Election Day assistance, and more – to sustain smooth ongoing election operations.

Customers choose Hart for the depth and breadth of elections know-how in our company, and for our secure, transparent and efficient voting technology. Since Verity was first federally certified in 2015, jurisdictions serving almost ten million registered voters have selected Hart, and jurisdictions serving millions more use our first-generation voting system, the Hart Voting System (HVS).

Jurisdictions that have chosen to leave their former vendors to partner with Hart are satisfied with their choice. A full 100% of customers who came to us from other vendors give our service top rating in our ongoing customer satisfaction surveys. Overall, 95% of our customers rated our service as *Excellent* or *Above Average*. Hart's team is dedicated to continuing to provide our customers with exceptional service and technology in support of their successful elections.

## SUMMARY

The State of New Hampshire is at a crossroads. You have the opportunity to choose all-new, secure, easy-to-use technology and forward-thinking processes and procedures. In Hart's proposal, you will become familiar with Verity's transparent, innovative paper-based solution – a system that provides a superior voter experience and streamlines election administration.

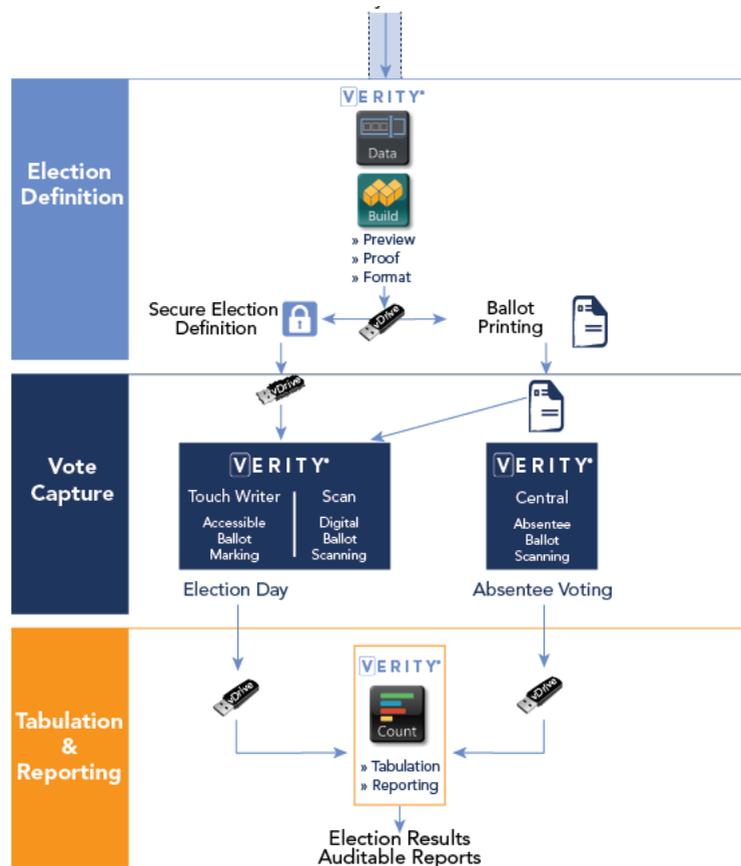
Hart would be honored to stand beside the State as you continue forward as an election leader. The Verity Voting system, the experience and integrity of the Hart team, and the proven approach we propose herein positions the State of New Hampshire to provide secure, accurate, efficient and accessible elections for years to come.

## PRECINCT COUNT DEVICE

- Describe in outline form the workflow for conducting an election using your proposed vote counting device system, including all steps required from defining the election, ballot preparation, programming the device, testing the device in advance of the election, opening and closing the device on election day at the polls, election night tabulation, and reporting.

The diagram below illustrates the various Verity Voting system hardware and software components and how they work as a system; the software and hardware components used will vary by jurisdiction.

### New Hampshire Election Office



**2. Can your precinct device be programmed to count each of the sample ballots provided with this set of questions without any redesign or change to the ballot?**

The precinct scanner (Verity Scan) is purposely designed to accept ballots that have been programmed using Hart’s ballot programming software applications (Data/Build). Likenesses of the sample ballots provided with this RFI request would be redesigned using Data/Build.

**3. What is the lightest weight paper that your precinct scanner will reliably count?**

The precinct scanner is designed for use with 28# bond paper. Ballot stock may be purchased directly from Hart or, if the State desires, Hart will provide our ballot paper specifications to customers so that they can partner with a paper supplier of their choosing.

Please see the Verity Knowledge Base Article “About Hart Official Ballot Paper” included with this response.

**4. What printing precision is required by your precinct scanner?**

Quality assurance of paper ballots is of utmost importance in any election where Hart’s paper-based voting solutions – Verity Scan and/or Verity Central – are used to process paper ballots. If ballot printing is not performed correctly, scanners may not read the ballots properly. Hart offers a Ballot QC Overlay - a clear film printed with targets for bar codes and margins. It is used to validate correct print dimensions for ballots printed directly from Verity Build, or by an offsite vendor. Hart will supply one set of these film overlays at the time of implementation; additional sets of overlays are available for purchase from Hart.

The Verity Voting System is designed to take into account digital printing variance, but any variance must be linear in nature. Allowable variance is defined by the three square targets, into which the upper left corner of all three barcodes must fit. Any ballot that does not meet this minimum specification should be rejected and reprinted. Sheet edge marks are for reference only. The ballot image should be centered on the sheet, but the critical reference point is the point of origin, and measurements should be made from this point. In addition, the ballot should be checked for skew (any rotation or tilting of the ballot printing), using the skew guides printed at the top and bottom of the overlay.

Please see the Verity Knowledge Base article “Ballot Printing QA” included with this response.

**a. Can ballots be printed from a desktop computer with a Commercial Off the Shelf Printer?**

Yes. Ballots can be printed from a desktop computer with a Commercial Off the Shelf (COTS) printer using .pdf ballot files. Ballots may also be printed from a dedicated workstation and COTS printer, federally certified and available from Hart. The workstation is pre-loaded with Hart’s ballot programming software applications (Data/Build). The application allows for ballot printing.

**b. Does your precinct scanner require ballots printed by a commercial printing service?**



Ballots used in the precinct scanner (Verity Scan) can either be printed by the State, Hart or a Hart certified commercial printer. Hart works with commercial printers across the country and is happy to provide the certification materials to a printer of the State's choosing.

**c. Can ballots be printed with a side or top margin? If yes, what limit is there on the size of the margin?**

Yes, ballots can be printed with a side or top margin. Margins for the printable area of the ballot can be edited through the ballot templates available in Hart's ballot programming software application (Verity Data).

When selecting ballot templates, the following should be considered:

- Using standard templates or templates with fewer columns will allow ballot text to take up more space on the page.
- Using condensed templates or templates with more columns will help fit more ballot data on a single page.
- Using grayscale (GS) templates will save on printing costs.



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## SCANNED IMAGES OF BALLOTS

5. Does your device save electronic files which are an image of each cast ballot counted by the device?

Yes.

- a. If yes, can your software can turn this feature on and off?

Yes, selecting whether ballot images are saved by the device is available through Hart's ballot programming software application.

6. Does your device save an electronic file which is an image of a ballot if the device rejects the ballot (ballot from another election, ballot from wrong town/ward, or wet ballot, etc.)?

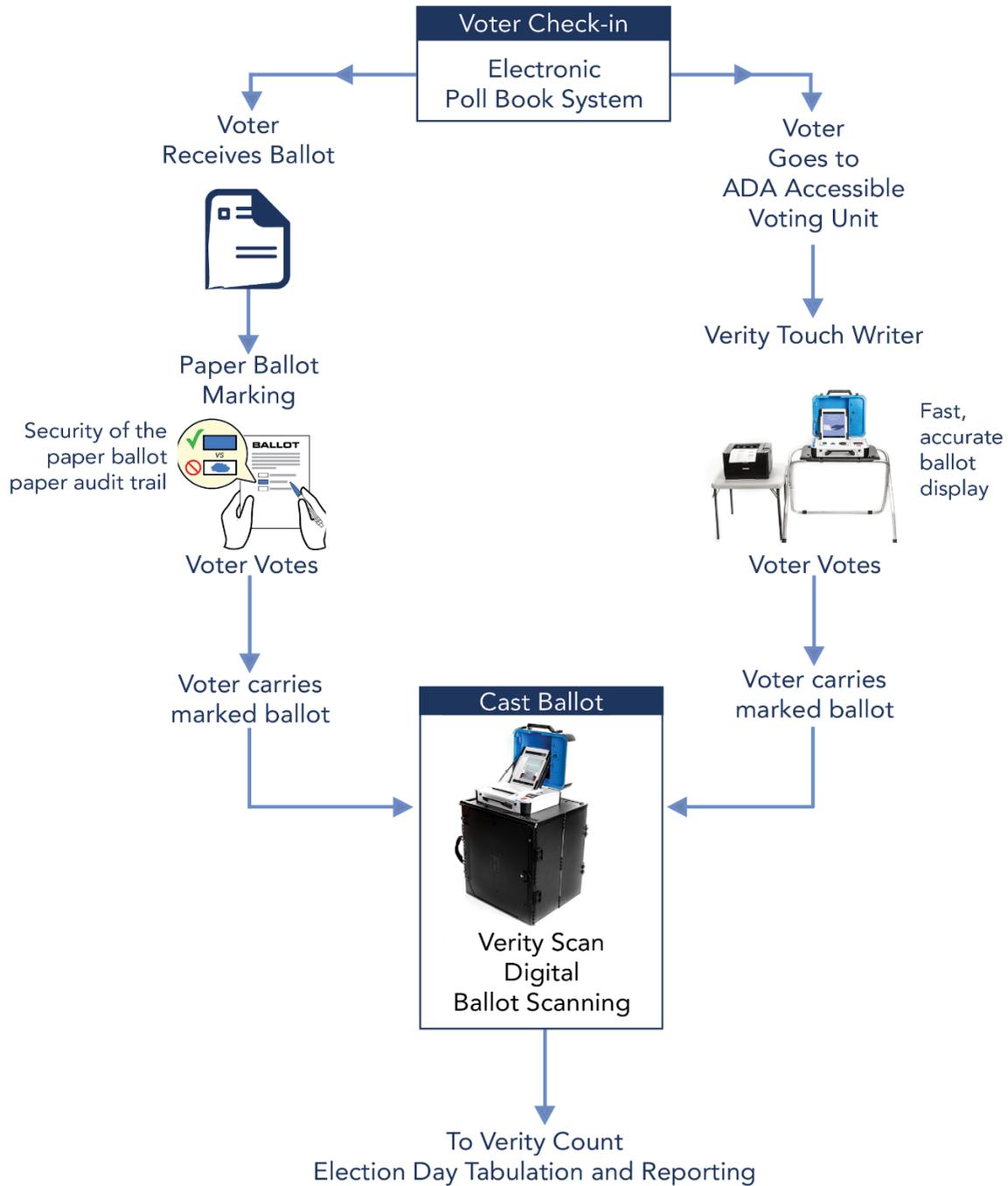
No. Electronic file images are saved only for ballots from the specific election for which the device is programmed that are successfully accepted by the device.



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## PRECINCT CONFIGURATION

7. Describe a typical precinct configuration.



The diagram above illustrates a precinct configuration and process flow; the hardware components used will vary by jurisdiction.

## 8. Describe the procedures poll workers will follow to open/start and close/produce report and shut down your device at the polls.

### Opening Polls

*NOTE: You must open polls on the first day that voting will occur on that device.*

- 1) Set up and power on the Verity Scan. Confirm that you are running on AC power.
- 2) Select Print Zero Report.

*NOTE: If you are reopening polls during subsequent days of a multiple-day voting event, then you will not print a Zero report.*

- 3) Wait while the Zero report prints (on the built-in report printer). Using the Zero report, check the following:
  - Verify the ballot count total on the Zero report is ZERO and enter it in the Reconciliation Log.
  - Verify that the polling place on the report is correct.
- 4) Verify that the clock in the bottom left corner of the screen displays the correct time.
- 5) Select Open the Polls
- 6) Enter the Open Polls passcode, and then select Accept

### Suspending/Closing Polls

- 1) From the Main menu, select Suspend Polls or Close Polls. If you will be closing polls, you must confirm before proceeding.
- 2) Enter the Suspend or Close Polls passcode, and then select Accept.
- 3) You may print and file reports available on the screen as required by your jurisdiction. Available reports may vary and are configured by the election officials in your jurisdiction.

## 9. Describe precinct reporting features.

Hart's precinct scanner (Verity Scan) device reports are printed on each device's thermal printer. Some reports are automatically printed at the appropriate time; others are printed only upon request of the user.

All reports include the date and time the report was printed.

Device reports include:

Report name	Report contents/description	When it is printed
Power-up Self Test	<ul style="list-style-type: none"> <li>• Software version</li> <li>• Device status</li> <li>• Power/battery status</li> </ul>	Automatically, when the device is powered on.
Zero report (Touch Writer)	<ul style="list-style-type: none"> <li>• Election Name and Date</li> <li>• Jurisdiction and polling place</li> <li>• Voting Type (e.g. Early Voting or Election Day)</li> <li>• Ballot count</li> <li>• Lifetime count</li> <li>• Number of precincts/splits</li> <li>• Ballot Marking session summary</li> </ul>	Before polls are opened, upon request.
Zero report (Controller, Scan)	<ul style="list-style-type: none"> <li>• Election Name and Date</li> <li>• Jurisdiction and polling place</li> <li>• Election Mode (i.e. Early Voting or Election Day)</li> <li>• Ballot count</li> <li>• Lifetime count</li> <li>• Number of precincts/splits</li> <li>• Tally summary by contest*</li> </ul>	Before polls are opened, upon request.
Open Polls	<ul style="list-style-type: none"> <li>• Election Name and Date</li> <li>• Jurisdiction and polling place</li> <li>• Election Mode (i.e. Early Voting or Election Day)</li> <li>• Ballot count</li> <li>• Lifetime count</li> </ul>	Automatically, when polls are opened (i.e. Election Day) or re-opened (i.e. Early Voting).
Suspend Polls (Touch Writer)	<ul style="list-style-type: none"> <li>• Total Ballots printed</li> <li>• Precincts voted (summary)</li> </ul>	Automatically, when polls are suspended.
Close Polls (Touch Writer)	<ul style="list-style-type: none"> <li>• Election Name and Date</li> <li>• Jurisdiction and polling place</li> <li>• Election Mode (i.e. Early Voting or Election Day)</li> <li>• Ballot count</li> <li>• Lifetime count</li> <li>• Total Ballots printed</li> <li>• Precincts voted (summary)</li> </ul>	Automatically, when polls are closed.
Suspend Polls (Controller, Scan)	<ul style="list-style-type: none"> <li>• Election Name and Date</li> <li>• Jurisdiction and polling place</li> <li>• Election Mode (i.e. Early Voting or Election Day)</li> <li>• Ballot count</li> <li>• Lifetime count</li> </ul>	Automatically, when polls are suspended.
Close Polls (Controller, Scan)	<ul style="list-style-type: none"> <li>• Election Name and Date</li> <li>• Jurisdiction and polling place</li> <li>• Election Mode (i.e. Early Voting or Election Day)</li> <li>• Ballot count</li> <li>• Lifetime count</li> <li>• Tally (summary by contest)*</li> </ul>	Automatically, when polls are closed.
Precincts Enabled	<ul style="list-style-type: none"> <li>• Election Name and Date</li> <li>• Jurisdiction and polling place</li> <li>• Election Mode (i.e. Early Voting or Election Day)</li> </ul>	Available on the Ready to Open Polls screen.

Report name	Report contents/description	When it is printed
	<ul style="list-style-type: none"> <li>Ballot count</li> <li>Lifetime count</li> <li>Number of precincts/splits</li> <li>List of precincts</li> </ul>	
Configuration Readiness	<ul style="list-style-type: none"> <li>Jurisdiction</li> <li>Polling Place</li> <li>Voting Type</li> <li>Device Type</li> <li>Device Serial Number</li> <li>Software version</li> <li>Ballot count</li> <li>Lifetime count</li> <li>vDrive ID</li> </ul>	Available on the Ready to Open Polls screen.
Access Code Summary Report (Controller)	<ul style="list-style-type: none"> <li>Total access codes issued since polls were opened</li> <li>Access codes cast/used</li> <li>Access codes expired</li> <li>Access codes deactivated</li> <li>Access codes spoiled</li> <li>Access codes open</li> <li>Access codes in use</li> </ul>	Available at any time on the Controller.
Ballot Marking Session Summary Report (Touch Writer)	<ul style="list-style-type: none"> <li>Total ballots activated since polls were opened.</li> <li>Ballots printed</li> <li>Ballots spoiled</li> <li>Ballots in use</li> </ul>	Available at any time on the Touch Writer.
Tally*	<ul style="list-style-type: none"> <li>Total number of precincts/splits associated with the device</li> <li>Vote totals for each contest choice/ candidate, grouped by contest, for the device</li> <li>Total ballots cast on the device.</li> </ul>	After polls are closed on Controller/Scan, upon request.
Ballot Count (Scan)	<ul style="list-style-type: none"> <li>Number of precincts/splits associated with the polling place</li> <li>Number of precincts/splits with cast ballots</li> <li>Total number of cast ballots</li> <li>Total ballots cast for each precinct for the election</li> <li>Total ballots cast for each precinct for that day</li> </ul>	After polls are closed, upon request.
Write-in Report	<ul style="list-style-type: none"> <li>Ordered by precinct, and then contest</li> <li>Each unique write-in entered</li> <li>Votes received for each unique write-in</li> </ul>	After polls are closed on Controller/Scan, upon request.

*NOTE: The type of tally report available (summary or by precinct) is determined according to settings chosen by the election officials. The tally report may not be available for some jurisdictions, depending on election procedures.*

## 10. Describe the voter interface.

Verity voting devices provide touchscreen input interfaces for the voter.

### a. Describe how a voter is alerted to undervotes and overvotes.

If scanning hand-marked paper ballots, and the voter has overvoted (marked more than the allowed number of choices in a contest), the precinct scanner (Verity Scan) may prompt the voter to choose whether to:

- a) Remove their ballot and request a new ballot from the poll worker, or
- b) Cast their ballot as-is (overvoted contests will not be counted)

If the voter has left a ballot or contest blank, the voter may be prompted to choose whether to:

- a) Remove their ballot and make changes, or
- b) Cast their ballot as-is (blank contests will not be counted)

The voter prompts that appear on Verity Scan will vary depending on how the election was set up (determined by the jurisdiction). The voter should follow the directions on the Verity Scan screen. In some jurisdictions, the voter will be prompted to contact a poll worker, and the poll worker must press the poll worker button to accept a ballot as-is.

### b. Can the device be programmed to return the overvoted ballot to the voter?

Yes, returning overvoted ballots to the voter may be programmed during the ballot programming process in Hart's Data/Build software applications.

### c. Can a voter notification can be turned on and off?

Yes, the voter prompts that appear on the precinct scanner (Verity Scan) will vary depending on how the election was set up (determined by the jurisdiction). Voter notifications may also be enabled or disabled on a per-device basis by an authorized member of the elections staff.

### d. If yes, describe how notification for a particular alert is turned on or off.

Notifications (overvote, undervote, etc.) are set during ballot programming using Hart's software application, Build. In Build's Configure Settings tab, you will set up your application and device options for the precinct scanner (Verity Scan). Under the Elections Settings menu, you will make settings for the current election.

Printed Ballots | Voting Type Setup | Device Reports | Device Passcodes | Shared Device Behaviors | **Scan** | Controller | Touch

**Ballot Processing Rules:**

Mismark Type	Scan Behavior	Override by
Undervote	Allow	
Overvote	Reject All	Voter
Blank Ballot	Reject All	Voter
Invalid Vote	Reject All	Voter
Blank Page	Reject All	Voter
Marginal Mark	Reject All	Voter

**Other settings:**

Save scanned images on vDrive

Save scanned PVR's on vDrive

Default audio volume (for alerts): High

Select the Scan tab to configure the Scan device behavior when scanning ballots with voter intent issues. These settings determine if and how second-chance voting opportunities are presented to the voter.

A) Choose if Scan will allow or reject undervotes, overvotes, blank ballots, blank pages, invalid votes, and marginal marks.

- Allow: Scan will cast all ballots containing contests with issues of that type (undervote, overvote, etc.) as-is. The voter will not be notified of any voter intent issues of that type.
- Reject All: Scan will prompt the voter to correct any contests containing issues of that type (undervote, overvote, etc.) before the ballot can be cast. A rejected contest can be overridden by either the voter or the poll worker (see below).
- Reject for some contests (available for undervotes only): Scan will reject undervotes only for specified contests.

B) Choose whether the voter or the poll worker has the ability to override rejected undervotes, overvotes, blank ballots, blank pages, invalid votes, or marginal marks.

*NOTE: If a voter or poll worker chooses to scan a ballot as-is, any choices in undervoted, overvoted, or invalid contests will not be counted. Otherwise, in the case of undervotes and blank ballots, the ballot can be corrected and rescanned. In the case of overvotes or marginal marks, the ballot may need to be spoiled and the voter given a new ballot, according to local rules.*

Voter notifications may also be enabled or disabled on a per-device basis by an authorized member of the elections staff. This is accomplished through the Scanning Rules menu, in the Administrator menu for each device. Changing scanning rules only affects the current session, and requires an Administrator-level passcode (configured in Verity Build).

## 11. Describe how a voter casts a ballot.

### Voting with Verity Scan

Verity Scan is a polling place-based scanner used to scan and cast paper ballots whether they are hand-marked or marked using Verity Touch Writer (accessible ballot marking device).

Instructions for hand-marking ballots

- 1) The voter fills in the selection box to the left of their choices completely using blue or black ink.
- 2) When the voter has finished marking their ballot, they take the ballot to Verity Scan to cast their ballot.
- 3) Verity Scan is ready to scan when you see the Ready to Use screen. The voter removes the ballot privacy sleeve (if applicable) and inserts the voter ballot into Verity Scan. Flashing green arrows indicate the location and direction of the scanner feed. Ballots must be fed short-edge first, but may otherwise be scanned in any orientation.
- 4) After scanning their ballot, the voter waits a moment while the ballot is processed.
- 5) The voter's ballot has been cast when Verity Scan displays the American flag. If enabled, an audible chime will also sound.



*IMPORTANT: In elections with multi-sheet ballots, voters must receive all sheets for their ballot. Voters should be instructed to scan all sheets of their ballot, even if they have made no choices on a particular sheet.*

12. Describe how a voter receives confirmation that his/her ballot has been cast and counted.

The voter's ballot has been cast when Verity Scan displays the American flag. If enabled, an audible chime will also sound.

The CVR is stored on the media device (vDrive) and the hard drive of the precinct scanner. The vDrive is "read" by the tabulation software (Count) at the end of the election for results reporting.

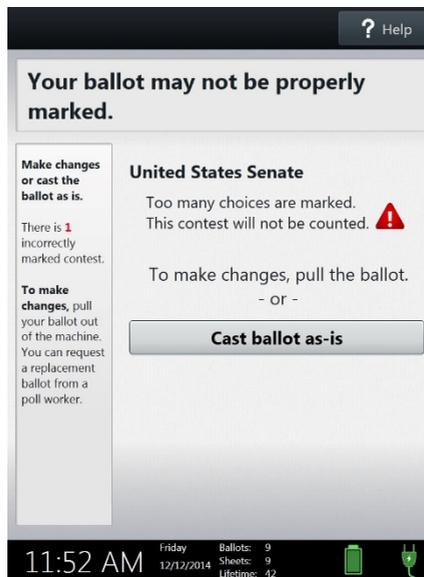
13. Describe the screen size for the screen the voter would view to receive device messages when casting a ballot.

The screen size is 12.1 inches.

14. Describe the font sizes and options available for the messages a voter may receive from the device when casting a ballot.

Font sizes vary depending upon the information displayed on the screen. See below for detail.

Below is an example of the exception messages and resolution for the precinct scanner (Verity Scan) devices from the Verity Device Troubleshooting Field Guide.



15. Describe how messages a voter may receive from the device when casting a ballot are programmed into the machine and how they can be revised.

The plain language messages received from the precinct scanner device, examples of which are shown above, are a standard element of the design, part of the federally certified product, and are part of the device as delivered.

16. Can local election officials make changes to the messages?

No, local election officials cannot make changes to the messages received from the precinct scanner device.

- a. If yes, what additional hardware or software is required and at what cost?

N/A

17. If only the vendor can change the messages, does this require an on-site service call?

N/A. The messages are part of the federally certified voting system and will not be changed by Hart.

- a. Describe the process and provide the current cost to implement a revision.

N/A

18. Describe your device's privacy protections related to the screen used to provide a voter with messages.

- a. Can a voter in line behind the voter see the message?
- b. Can the moderator standing beside the device see the message?

Each precinct scanner includes privacy screens. The screens attach to the ballot box (also included with each precinct scanner), providing the voter with privacy and independence as they complete their voting process. Due to the suitcase and privacy screen design, voters behind and moderators beside the device are unable to see the message(s).





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## BALLOT DESIGN AND PRINTING

### 19. What ballot lengths can be accommodated?

- a. 11"?
- b. 14"?
- c. 18"?
- d. 21"?
- e. 22"?

Verity supports traditional ballots of the following sizes:

- 8 ½ x 11-inch
- 8 ½ x 14-inch
- 8 ½ x 17-inch
- 8 ½ x 20-inch
- 11 x 17-inch (central scanner only)

### 20. What is the required size, if any, of the ballot header?

The ballot header size is dependent upon the ballot size. For example, if the ballot displays a one column, two contest ballot, then the ballot header could be larger than if the ballot displays a two column, ten contest ballot.

Please note: English ballots produced using the Verity Voting system use the Segoe UI font family. Use of other fonts is not supported; if local jurisdictions require use of other fonts for ballot headers, additional text, stubs, etc., it is possible to upload such elements as images.

### 21. What is the largest size ballot your machine can process?

The largest size ballots Verity supports are:

- 8 ½ x 20-inch (precinct scanner)
- 11 x 17-inch (central scanner)

### 22. Can the State or a town/city purchase ballot printing directly from your company?

Yes.



23. In your response provide an 8 ½ by 22-inch piece of paper that shows all the locations for ovals and their orientation for every oval that your device is capable of counting.

Verity’s largest sized ballot is either 8 ½ x 20 (precinct scanner) or 11x17 (central scanner). Verity ballots include a rectangle for voter selections. The locations for rectangles and their orientations vary depending upon the contests on the specific ballot. Verity ballots do not include “timing marks” therefore, a rectangle can be placed anywhere within the margins of the ballot and the scanner will successfully “read” the rectangle. Below is an image of a Verity ballot.

**Official Ballot**

Precinct 101  
**Page 1 of 2**

**Demonstration Election**  
July 4, 2017  
Sample County, USA

Please use a black or blue ink pen to mark your ballot. To vote for your choice in each contest, completely fill in the box next to your choice.

STATE CONTESTS	LOCAL CONTESTS
<p><b>Secretary of State</b> Vote for not more than one (1)</p> <p><input type="checkbox"/> Cynthia Foster</p> <p><input type="checkbox"/> Sarah Coleman</p> <p><input type="checkbox"/> Ronald Rivera</p> <p><input type="checkbox"/> _____ Write-in: _____</p>	<p><b>Sheriff</b> Vote for not more than one (1)</p> <p><input type="checkbox"/> Gregory Moore</p> <p><input type="checkbox"/> Fred Mitchell</p> <p><input type="checkbox"/> _____ Write-in: _____</p>
<p><b>Attorney General</b> Vote for not more than one (1)</p> <p><input type="checkbox"/> Jeffrey Thomas</p> <p><input type="checkbox"/> Frances Diaz</p> <p><input type="checkbox"/> Elizabeth Peterson</p> <p><input type="checkbox"/> _____ Write-in: _____</p>	<p><b>Tax Assessor</b> Vote for not more than one (1)</p> <p><input type="checkbox"/> Susan Alexander</p> <p><input type="checkbox"/> Thomas Gonzalez</p> <p><input type="checkbox"/> Shirley Young</p> <p><input type="checkbox"/> _____ Write-in: _____</p>
<p><b>State Auditor</b> Vote for not more than one (1)</p> <p><input type="checkbox"/> Karen Evans</p> <p><input type="checkbox"/> Kenneth Price</p> <p><input type="checkbox"/> _____ Write-in: _____</p>	<p><b>Councilmember</b> Vote for not more than two (2)</p> <p><input type="checkbox"/> Andrew Jones</p> <p><input type="checkbox"/> Laura Brooks</p> <p><input type="checkbox"/> Bruce Martinez</p> <p><input type="checkbox"/> Joshua Adams</p> <p><input type="checkbox"/> Rachel Taylor</p> <p><input type="checkbox"/> Aaron Cook</p> <p><input type="checkbox"/> _____ Write-in: _____</p>
<p><b>State Treasurer</b> Vote for not more than one (1)</p> <p><input type="checkbox"/> Dennis Watson</p> <p><input type="checkbox"/> Keith Perez</p> <p><input type="checkbox"/> _____ Write-in: _____</p>	

98113

**FEDERAL CONTESTS**

**President**  
Vote for not more than one (1)

Gerald Baker

Ryan Ramirez

Paula Cox

\_\_\_\_\_  
Write-in: \_\_\_\_\_

**United States Representative District 1**  
Vote for not more than one (1)

Beverly Davis

Michelle Morgan

George Sanders

\_\_\_\_\_  
Write-in: \_\_\_\_\_

**Read Both Sides of the Ballot**

## DEVICE PROGRAMMING

24. Can the state or a town/city contract with your company to program the ballot counting device?

Yes.

- a. Provide the current price, separately for each, to program your device to count the two attached PDFs of ballots.
  - i. Salem 2018 general is a typical state ballot.
  - ii. Londonderry 2019 is a typical town/school ballot.

Hart's Ballot Programming Services (BPS) Service Bureau fees are based on how many contests are included for that specific election. For example, an election with 1-5 contests may cost \$1,500.00. This price includes ballot layout, audio, proofs, programming and up to 1,000 printed ballots. Printed ballots required beyond the initial 1,000 may be ordered for an additional fee. Current retail prices for the Service Bureau are reflected below.

Number of Races	Price
1-5	\$1,500.00
6-10	\$2,530.00
11-20	\$3,300.00
21-40	\$4,180.00
41-75	\$5,280.00
76-100	\$6,270.00

25. If the state or a municipal user wants to program the precinct counting device for a particular ballot without using your programming services, how is that done?

Hart's ballot programming software applications (Data/Build) must be used to program our Verity Voting system devices. Either Hart, through our Ballot Programming Services (BPS) team or the jurisdiction may program the ballots using Data/Build.

- a. What software is required?

Hart's Data and Build software applications are required and may be purchased from Hart or Hart may be contracted to provide the ballot programming services.



- b. Can your system count a ballot designed and printed from other software, such as Microsoft Word or Adobe PDF products?

No. Hart’s Verity system is purposely designed to accept only ballots programmed using our Data/Build ballot programming software application.

- c. If your system requires proprietary software to program the ballot counting device to read a ballot, will towns, cities, and school districts using your precinct counting device for municipal elections have to adopt a uniform ballot style/layout?

Yes, a uniform ballot style/layout will have to be adopted however, within each ballot, unique characteristics for a particular town, city, school district may be added.

- i. If not, are there any limitations on the ballot design? If yes, describe.

N/A

- d. If your system requires proprietary software to program the ballot counting device to read a ballot, provide general pricing information to obtain this service, per each different ballot.

Pricing for Hart’s ballot programming software application (Verity Data/Build) is based on the jurisdiction’s number of registered voters (RV). An annual license and support fee is also charged. Current retail prices for Data/Build are reflected below.

Product	Up to 10,000 RV	10,001 – 50,000 RV	50,001 – 250,000 RV	250,001+ RV
Ballot Programming – standalone	\$15,000.00	\$30,000.00	\$40,000.00	\$50,000.00
Ballot Programming – networked	\$7,500.00	\$15,000.00	\$20,000.00	\$25,000.00



For a New Hampshire General Election, New Hampshire creates 320 different paper official ballots. At the least, the town/ward name is different on each ballot. With column rotation, ballots with all the same candidates on them require different versions for different polling places/precincts so that a given candidate is in a different column in different polling places. Typically, we have had 3 columns, so in a region where voters are all voting for the same offices/ candidates, 1/3 will have a given candidate in the first column position, 1/3 will have that candidate in the second column position, etc.

New Hampshire has five Executive Council Districts, 24 State Senate Districts, and 400 State Representative seats, under the 2012 redistricting, distributed into 204 districts (some single member, some multi-member).

There are 312 separate polling places or precincts. Currently 190 of these precincts use an electronic ballot counting device. These 190 precincts serve approximately 7/8ths of the voters in the state.

The ballots must be prepared in the following forms:

- Election Day – Paper
- Absentee – Paper
- Absentee – PDF
- Sample – Paper
- Sample - PDF

Absentee ballots must be identical to election day ballots, but for having the word "Absentee" on the top of the ballot. Sample ballots must be identical to election day ballots, but for having the word "Sample" on the top of the ballot and omitting the Secretary of State's signature.

New Hampshire towns, at town elections, may have several different ballots being cast at the same election. Currently, voters cast two or more different ballots (ballot pages) in the same device.

Does your software or precinct counter hardware have any limits on the number of distinct pages of ballots it can be programmed for and count at one election?

Ballots may include:

- 1) Town election ballot
- 2) Grade School District election ballot
- 3) Middle School District election ballot



- 4) Regional High school District election ballot
- 5) Water District election ballot
- 6) Fire District election ballot
- 7) Other Village District Election ballots (one NH town currently has 8 different fire, water, and village districts which have some voters who vote in that town.)

Please see the following table for the Verity solution configurations.

Element	Limit
Precincts	3,000
Splits per precinct	20
Total precincts + splits in an election	3,000
Districts for voting devices and applications	400
Parties in a General Election	24
Parties in a Primary Election	10
Contests in an election	2,000
Total contest choices (voting positions) in an election	5,000
Maximum length of choice name	100 characters
Choices in a single contest	300
Maximum write-in length	25 characters
Ballot styles	N/A
Voting types	5
Maximum polling places per election	3,050
Maximum devices per election	N/A
Maximum number of central count scanners in a single network	4
vDrive (media device) capacity – Scan (precinct scanner) voting device	9,999 sheets per vDrive
vDrive (media device) capacity – Verity Central (central scanning device)	80,000 sheets per vDrive
Number of voters definable per election	2,500,000
Number of total ballots cast per election	1,750,000
Maximum number of sheets per ballot	4 sheets
Maximum number of sheets – Verity Scan (precinct scanner)	9,999
Maximum number of CVRs – Verity Count (central scanning device)	7,000,000 CVRs
Ballot sizes	8.5x11, 8.5x14, 8.5x17, 8.5x20
Number of languages in a single election (including English)	11

*NOTE: The ballot limit for Verity Scan is a recommended limit for the number of single-sheet ballots scanned on an individual Verity Scan during a single election. For a two-sheet ballot, divide this number by 2; for a 4-sheet ballot, divide this number by 4.*

Many New Hampshire municipalities use "official ballot" voting, known as SB2 voting after the bill number which adopted the system. Official paper ballots are used to vote on the budget and on all the warrant article questions before the voters. Currently, this can result in each "ballot" consisting of several pages of ballots listing the offices to be voted and then all the questions. These ballots are typically printed on two sides. While 2 to 5 pages (4 to 10 printed sides) of ballots are most common, some years some jurisdictions require more pages.

Town, School District, and Village District clerks are required to prepare and print all local election ballots.

26. How many different ballots (ballot pages) can your precinct scanner be programmed to count at one election?

The media device (vDrive) capacity for each precinct scanner is 9,999 duplex sheets (printing on both sides) per vDrive. A new vDrive is inserted for each election into each precinct scanner.

27. How much of the election specific programming can be done by local election officials for local ballots that are to be counted by your device?

As much or as little of the ballot programming can be done by local election officials, provided the entity has purchased the Data/Build ballot programming software application. Conversely, ballot programming may be performed by Hart.



New Hampshire, for state elections must prepare a general election absentee ballot that must be available in paper form and PDF form to be sent to UOCAVA voters no later than 45 days before the election. New Hampshire will hold its State Primary election on the 8th of September and its general election on November 3rd in 2020. 45 days before the general election is September 19th. While the candidates for most races will be known by September 19 those which will be recounted may not be known until the Ballot Law Commission decide any contests arising from recounts on September 17th• The Ballot Law Commission must also decide on outstanding issues regarding candidate eligibility and any challenges regarding replacement of candidates on the ballot.

28. If programming your precinct counter requires that the ballot be created in your system software and if this service would be purchased from you, please discuss whether you have the capacity to guarantee accurate general election ballots with at most 9 calendar days to prepare the ballots and in some cases as few as 2 days to finalize ballots.

Hart’s Ballot Production Services (BPS) team is dedicated to the success of our customers and is accustomed to working under tight election deadlines. Provided the communication lines remain open between the jurisdiction and Hart throughout the BPS process, Hart can meet and exceed the 2- to 9-day timeline mentioned above.

Please see the Verity Knowledge Base article “Ballot Production Services” included with this response.

## 29. Describe whether you have been subject to similar deadlines in other jurisdictions and identify them.

Founded in 1912, focused on elections since our inception and servicing customers from coast to coast, Hart is keenly aware of the numerous election deadlines that must be met. Hart partners with 800+ jurisdictions across the country, each of whom are subject to similar deadlines. Current Hart customers who use our Ballot Production Services (BPS) include:

Albany, TX  
Bandera County, TX  
Bedford County, PA  
Bee County, TX  
Beeville, TX  
Big Lake, TX  
Borger, TX  
Brooks County, TX  
Brown County, TX  
Burlison County, TX  
Callahan County, TX  
Campbell County, VA  
Caribou County, ID  
Cass County, TX  
Chambers County, TX  
Cherokee County, TX  
Chesapeake, VA  
China, TX  
Clear Creek ISD, TX  
Cleveland ISD, TX  
Cleveland, TX  
Coke County, TX  
Comal County, TX  
Comanche County, TX  
Concho County, TX  
Conroe, TX  
Copperas Cove, TX  
Coryell County, TX  
Cotulla ISD, TX  
Cotulla, TX  
Crosby County, TX  
Cross Plains, TX  
Culberson County, TX  
Cypress-Fairbanks ISD, TX  
Dawson County, TX  
Deaf Smith County, TX  
Deer Park ISD, TX  
Deer Park, TX  
Delta County, TX  
Devine, TX  
DeWitt County, TX  
Dickens County, TX  
Domino, TX  
Duval County, TX  
Essex County, VA  
Falls County, TX  
Floyd County, TX  
Foard County, TX

Franklin County, ID  
Friendswood, TX  
Gaines County, TX  
Gilmer, TX  
Goldthwaite ISD, TX  
Gorman ISD, TX  
Graham, TX  
Gray County, TX  
Grimes County, TX  
Hale County, TX  
Hamshire-Fannett ISD, TX  
Hardin County, TX  
Hardin-Jefferson ISD, TX  
Harris County ESDs (4, 7, 8, 9, 11, 14, 16, 20, 21, 24, 29, 46, 48, 75, 100), TX  
Harrison County, TX  
Hempstead, TX  
Henry County, VA  
Hondo, TX  
Hopkins County, TX  
Hudspeth County, TX  
Irion County, TX  
Jack County, TX  
Jacksonville ISD, TX  
Jefferson ISD, TX  
Jefferson, TX  
Jim Hogg County, TX  
Jim Wells County, TX  
Junction ISD, TX  
Karnes County, TX  
Katy ISD, TX  
Katy, TX  
Kenedy County, TX  
Kerr County, TX  
Kimble County, TX  
King and Queen Co., VA  
La Porte ISD, TX  
La Porte, TX  
La Salle County, TX  
Lefors, TX  
Liberty County, TX  
Lipscomb County, TX  
Madison County, TX  
Marion County, TX  
Marlin ISD, TX  
Marlin, TX  
Martin County, TX

Matagorda County, TX  
McCulloch County, TX  
McLean, TX  
Medina County, TX  
Menard County, TX  
Mills County, TX  
Monroe County, IN  
Morgan's Point, TX  
Motley County, TX  
Nacogdoches County, TX  
Nevada County, CA  
New Diana ISD, TX  
Newcastle, TX  
Northumberland Co., VA  
Oak Ridge North, TX  
Olney, TX  
Ore City, TX  
Palo Pinto County, TX  
Parker County, TX  
Pleasanton, TX  
Polk County, TX  
Port Arthur, TX  
Poteet ISD, TX  
Prairie View, TX  
Premont, TX  
Prince William County, VA  
Rains County, TX  
Ranger, TX  
Ranger College  
Reagan County, TX  
Reagan Hosp. District, TX  
Red River County, TX  
Refugio County, TX  
Richmond County, VA  
Rio Grande City CISD, TX  
Roberts County, TX  
Robstown, TX  
Rockdale, TX  
Roma, TX  
Runnels County, TX  
San Jacinto County, TX  
San Patricio County, TX  
Seagraves ISD, TX  
Seagraves, TX  
Seminole ISD, TX  
Shackelford County, TX  
Shoreacres, TX  
Spring Branch ISD, TX



Sterling County, TX  
Sulphur Springs, TX  
Taft ISD, TX  
Taft, TX  
Terrell, TX  
Throckmorton County, TX  
Titus County, TX  
Tom Green County, TX  
Tomball, TX  
Upshur County, TX  
Uvalde County, TX  
Uvalde, TX  
Van Horn, TX  
Westmoreland County, VA  
Wheeler County, TX  
Wichita County, TX  
Wilbarger County, TX  
Willacy County, TX  
Wood County, TX  
Young County, TX  
Zapata County, TX

### 30. Would your pricing change given these constraints?

Yes, pricing may change.

#### a. If yes, describe pricing for ballot preparation under these time constraints.

Pricing may change dependent upon a variety of factors, including delivery expectations. Only after the ballot is defined and the delivery timeline is communicated and agreed upon by both parties will Hart be able to assess the price associated with any time constraints.

New Hampshire has traditionally used a separate vendor or in-house resources to prepare our accessible voting system. New Hampshire has developed election management software that is capable of exporting ballot data for use in programming our accessible voting system.

### 31. If a ballot is created with your ballot creation software, is your system capable of exporting the ballot data in XML format for use by our accessible voting system?

Verity is a purpose-built voting system designed for use with devices and software developed by Hart. Although ballot information may be exported from our ballot creation software application (Data), any use of the information outside that of which it is intended (i.e., to be used with Hart's Verity Voting system) moves it outside the federal certification requirements and therefore, is neither allowed nor practiced by Hart.

### 32. Describe how your system is compatible with other vendor's systems. If another vendor's accessible voting system marks a pre-printed ballot can it be counted by your ballot counting device?

Verity is a purpose-built voting system designed for use with devices and software developed by Hart. Other vendor's accessible voting system pre-printed ballots are not able to be counted by our Verity Voting devices.

### 33. Describe whether your system is compatible with other vendor's systems so that a ballot from an accessible system that prints a ballot on demand could be counted by your ballot counting device.

The Verity Voting system is a purpose-built voting system designed for use with devices and software developed by Hart. A ballot from our accessible system (Touch Writer) can be scanned by our precinct or central scanner (Scan or Central). Other vendor's ballots are not able to be counted by our devices.



34. If your proposed ballot counting device is approved in New Hampshire, will your vote counting device be able to count a ballot designed to be counted by the Accuvote ballot counting device?

The Verity Voting system is a purpose-built voting system designed for use with devices and software developed by Hart. Other vendor's ballots are not able to be counted by our devices.

35. If a ballot is created with your ballot creation software, is your system capable of exporting the XY coordinates of each oval on the ballot associated with a candidate or question Yes/No choice?

The Verity Voting system neither uses XY coordinates for ballot creation nor ovals for voter selections.

36. If your precinct scanner is programmed to count a ballot created outside your system, once programmed to count that ballot is your system capable of exporting the ballot data in XML format for use by our accessible voting system?

The Verity Voting system is a purpose-built voting system designed for use with devices and software developed by Hart. Our precinct scanner cannot be programmed to count a ballot created outside Verity.

37. If your precinct scanner is programmed to count a ballot created outside your system, once programmed to count that ballot, is your system capable of exporting the X/Y coordinates of each oval on the ballot associated with a candidate or question Yes/No choice?

The Verity Voting system is a purpose-built voting system designed for use with devices and software developed by Hart. Our precinct scanner cannot be programmed to count a ballot created outside the Verity Voting system.

38. If your answer to these questions on exporting XML or X/Y coordinate data is yes, do your licensing terms allow the export of the referenced data?

N/A

39. If yes, is there any additional cost to export that data?

N/A

40. If we must use your system to create a ballot to be able to program the precinct device to count that ballot:

- a. Can your system accept an upload of XML data as an alternative to keying in the data on the offices, candidates, and questions?

Yes. The Import feature in our ballot programming software application (Verity Data) allows for the import of election data from an external source saved on a removable USB drive. Any election data files must be in the correct format in order for you to import them into Verity Data.

Please see the Verity Knowledge Base article “Images and Rich Text” included with this response.

The following data may be imported into Verity Data:

- Election Basic Info
- Voting Types
- Parties
- Precincts
- Districts
- District to Precinct Associations
- Polling Places
- Polling Place to Precinct Associations
- Polling Place to Party Associations (Closed Primary elections only)
- Contests
- Contest to Precinct Associations
- Contest to District Associations
- Contest to Party Associations (Primary elections only)
- Choices
- Choice/Additional Text Elements Associations
- Choice to Party Associations
- Contest Precinct Split Rotation
- Dependent Contest Choice Associations
- Ballot Instructions
- Additional Texts
- Additional Text to Precinct Associations
- Additional Text to District Associations
- Additional Text to Party Associations (Closed Primary elections only)
- Ballot Order
- Translations
- Audio

- b. Can your system "scrape" or otherwise extract from a PDF the data necessary to program your precinct device to count that ballot?

No. Any .pdf scraping would need to be accomplished prior to formatting the data for import into Verity Data.

- c. If your system can scrape ballot PDF s, does it need additional data, e.g. XML candidate filing/rotation data from the State's election management system, to create ballots?

N/A

#### 41. Describe the removable data storage device(s) used in your system:

The removable data storage device (vDrive) is used to transfer digital ballot styles from the ballot programming software (Verity Build) to Verity hardware devices, and to transfer cast vote records from the precinct scanner (Verity Scan) and/or the central scanning system (Verity Central) to the tabulation and reporting software application (Verity Count).

vDrives are inserted into a standard USB port; each Verity Scan device has its own vDrive.

- a. What is its storage capacity in GB?

The storage capacity of the removable data storage device (vDrive) is 4GB.

- b. Is it proprietary or commercial off the shelf?

The media device (vDrive) is a commercially available USB drive, designed to meet Hart specifications. Customers are strongly advised to purchase vDrives directly from Hart to meet federal testing and certification requirement parameters.

- c. How many separate storage devices are required per election?

One media device (vDrive) is required for each voting device, precinct scanner and central count scanner workstation.

- d. Is there any circumstance where the memory device will become full during an election (high number of voters casting multi.page ballots)? Provide the data and calculation supporting your answer.

The media device (vDrive) capacity for each precinct scanner is 9,999 duplex sheets (printed on both sides) per vDrive. The media device (vDrive) capacity for each central count scanner is 80,000 sheets per vDrive. A new vDrive is inserted for each election into each precinct scanner and central count scanner workstation.

42. Does your precinct count device store any records of the ballots scanned on internal storage in the device?

a. If yes, describe the capacity?

Yes, the precinct scanner (Verity Scan) includes an internal storage device with a capacity of 16GB.

b. If yes, describe how the memory is cleared to use the device at a subsequent election?

On Hart's precinct scanner (Verity Scan), there is no need to remove old election data prior to inserting a new media device (vDrive) and predefining the device. The voting device will automatically delete the oldest set of election data if additional hard drive space is needed.

One of the unique features of Hart's Verity Voting system is its built-in redundancy. The media device (vDrive) is the primary location of the cast vote record storage and the device that is used at the end of the election to tabulate results. As an added measure for security, auditability, risk mitigation and disaster recovery, the precinct scanner's (Verity Scan) memory also stores cast vote records. The Scan will automatically delete the oldest set of election data if additional hard memory is needed.

43. Many New Hampshire towns and cities currently use an Accuvote optical scanner to count ballots and the GEMS election management system software. If your proposed ballot counting device is approved in New Hampshire, is your device compatible, can it be programmed using the output of the GEMS election management system?

Yes. The output of the GEMS election management system could be imported into Hart's ballot programming software applications (Data/Build) via the import feature. The import feature in Verity Data allows for the import of election data from an external source saved on a removable USB drive. Any election data files must be in the correct format for you to import them into Verity Data. Once the information is imported into Data, ballot programming for Hart's precinct scanner could be completed.

Please see #40 above for additional information.



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## MANAGEMENT OF WRITE-IN VOTES

If your device is capable of printing an image of write-in votes, or marks made in the write in space on the ballot, on a separate election night polling place results tape produced by the precinct counting device:

Hart's Verity Voting system provides for the digital capture and reporting of write-in votes. The precinct scanner (Verity Scan) digitally sorts ballots that contain write-in votes. Verity Scan captures images of marked write-in choices. The integrated thermal printer can then print a graphic report of all write-in lines, enabling election officials to adjudicate write-ins at the polling place, if desired. (Alternatively, digitally imaged write-ins can be deferred for later adjudication in the tabulation and reporting software application, Verity Count.) This capability provides transparency, auditability, and efficient tabulation of returns.

Write In Report By Precinct	
Date & Time Printed	07/04/2016 8:06 PM
Qty Pcts/Splits Included	1
<b>101</b>	
President	Write In Votes = 3
 Write-in:	<u>John Doe</u>
	Accept? <input type="checkbox"/>
 Write-in:	<u>MICKEY MOUSE</u>
	Accept? <input type="checkbox"/>
 Write-in:	<u>J. Doe</u>
	Accept? <input type="checkbox"/>
Precinct Splits With No Write-Ins	
Official Signatures	
_____	
_____	

44. If the name is written in for an office where the voter also filled in an oval associated with a candidate whose name is printed on the ballot:

- a. Does the image get printed in the same place on the report as a write-in vote for an office where no oval was filled in?

No, please see above report example to view how write-ins are printed at the polling location.

- b. Does the vote tally treat this as an overvote for that office?

The voter would need to fill in both the candidate and write-in rectangles (Hart's Verity Voting system does not use ovals) for the precinct scanner to treat this scenario as an overvote.

- c. Using your system, once the name written in is identified as the name of a candidate whose name is printed on the ballot how do election officials at the polling place on election night determine which write-in votes for an office are a belt and suspenders vote, i.e. the voter both filled in the oval for a candidate and wrote his/her name in the write-in line? If your software/hardware for central counting/human adjudication is not part of your precinct count system, assume that software/hardware is not available.

Hart's precinct scanner (Verity Scan) can also be used as a central count scanner (recommended if the absentee/by-mail ballot quantity is low) however, the adjudication software (Central) is purposely designed to be used in the central elections office, not the polling place.

In the above example, the election officials would view the ballot for adjudication and make any needed changes to the ballot (i.e., spoil the ballot and issue a new ballot to the voter for appropriate marking) if:

- 1) During ballot programming overvotes were chosen to be rejected by the precinct scanner;
- 2) The voter filled in both the candidate and write-in rectangles (Hart's Verity Voting system does not use ovals) for the precinct scanner to treat this scenario as an overvote.
- 3) Once the ballot was rejected by the precinct scanner, the election official would visually inspect the ballot and determine which write-in votes for an office are a belt and suspenders vote.
  - i. Is it necessary for the officials counting ballots to find the ballot that was the source of the mark/name in the write-in space and then if a change in the vote totals is required, to make that change manually?

To ensure voter privacy, once a ballot is accepted by the precinct scanner, it is not able to be tied back to a voter. Therefore, an election official cannot find a ballot unless it was rejected by the precinct scanner.

45. If a name is written in for an office where the voter did not fill in any ovals for that office is the name of a candidate whose name is printed on the ballot, how does your system aid officials in reducing the total number of write-ins by one vote and adding one vote to the total for the candidate whose name is on the ballot?

The voter would need to fill in the rectangle next to their selection for the precinct scanner to interpret their selection as a vote. If no rectangle is filled in, the precinct scanner interprets it as undervote. Depending upon the options selected during ballot programming, ballots that include undervotes may be rejected by the precinct scanner.

46. Can multiple copies of the printed report showing images of write-ins be printed from the precinct count device?

Yes.

47. Can copies of the report of write in votes be printed from the removable memory device by a desktop or laptop computer connected to a standard printer?

No. Copies of the precinct scanner write-in report may not be printed from the removable media device by a desktop or laptop computer connected to a standard printer.

- a. Is proprietary software needed?

Hart's tabulation and reporting software application (Count) would be needed to read the removable media device (vDrive) and tabulate results.

- b. What format, i.e. PDF or proprietary, are the precinct count device reports in (results and write-ins)?

Hart's precinct scanner (Verity Scan) integrated thermal printer can print a proprietary graphic report of all write-in lines, enabling election officials to adjudicate write-ins at the polling place, if desired. Please see the following page for an example of this report.

Other reports are available from the precinct scanner in a style similar to the example below. See #9 for a list of these reports.



Write In Report By Precinct	
Date & Time Printed 07/04/2016 8:06 PM	
Qty Pcts/Splits Included	1
<b>101</b>	
President Write In Votes = 3	
<input checked="" type="checkbox"/> Write-in:	<u>John Doe</u>
	Accept? <input type="checkbox"/>
<input checked="" type="checkbox"/> Write-in:	<u>MIKEY MOUSE</u>
	Accept? <input type="checkbox"/>
<input checked="" type="checkbox"/> Write-in:	<u>J. Doe</u>
	Accept? <input type="checkbox"/>
Precinct Splits With No Write-Ins	
Official Signatures	
_____	
_____	

Hart’s tabulation and reporting software (Verity Count) organizes and exports data in a variety of formats including but not limited to TXT (delimited-separated), CSV, XLSX, PDF, and XML/EML so that the jurisdiction can upload or provide data to third party systems with minimal intervention. Additionally, Verity Count produces certain results reports (Cumulative, Canvassing, Precinct) in HTML format. CVR results can be easily exported in XML format from Verity Count’s auditing dashboard to support easy auditability by third parties.

## ELECTION RESULTS REPORTING

### 48. Can election results data be downloaded to an Excel spreadsheet?

The results reporting software (Verity Count) organizes and exports data in a variety of formats including but not limited to TXT (delimited-separated), CSV, XLSX, PDF, and XML/EML so that the jurisdiction can upload or provide data to third party systems with minimal intervention. Additionally, Verity Count produces certain results reports (Cumulative, Canvassing, Precinct) in HTML format.

### 49. How long does the election results tape (on thermal paper) remain readable before it fades into obscurity?

Thermal paper rolls provided by Hart are archival quality, lasting 7-10 years.

### 50. Is there a back-up memory card?

Verity provides multiple redundancies including the vDrive (primary media device for results reporting), the memory of the voting device and the paper ballot.

### 51. Describe how it would be possible, relying on the proposed system, to conduct a risk limiting audit (RLA) in the event RLAs are subsequently required in New Hampshire?

From the outset, Hart's Verity Voting system was designed and architected to support risk limiting audits (RLAs). Verity Voting supports risk limiting audits by enabling users to easily compare voter selections on auditable printed vote records (APVRs), in the form of Verity's hand marked or machine marked paper ballots, with machine interpretations of those same ballots, stored as Electronic Vote Records (EVRs). The ability to trace a 1:1 comparison between the APVR and the EVR enables auditors to assess the risk of whether the outcomes are different than those reported from the tabulation system.

From the earliest days of its modernized design, the Verity Voting system was architected to manage and export essential information to support RLAs, and the Verity Voting solution proposed has the capabilities envisioned for the audit, including:

- Verity currently stores electronic vote records in a non-sequential, randomized manner.
- Verity provides methods to identify retention device/ballot boxes (including polling place names and precincts supported at the location).
- Verity's Auditing Dashboard can filter EVR exports according to whether they contain particular races (contests).

Please see the Verity Knowledge Base article "Risk Limiting Audits" included with this response.



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## SECURITY, AND CYBERSECURITY

Hart is engaged in nationwide election security initiatives.

Hart is actively involved in the nationwide conversation on election security. We are connected with a broad community of stakeholders participating in knowledge sharing, best practice sharing and discussions on the latest election security technology and procedures. Some examples include:

**Department of Homeland Security** – Hart is a founding member of the DHS Sector Coordinating Council, a formalized group of industry representatives who together act as a voice on election cybersecurity. In coordination with the DHS Government Coordinating Council, Hart participates in identifying potential security risks and implementing measures to eliminate those risks.

**Election Assistance Commission** – Hart meets regularly with the EAC and actively participates in industry-wide initiatives.

**National Academies of Science, Engineering, and Medicine** – As one of only two manufacturers to appear at the meeting of the NASEM Committee on Science, Technology and Law on the Future of Voting (Denver, Dec. 8, 2017), Hart actively participates in the conversation on technology innovation to safeguard elections.

**Election Center** – Hart leadership serves on the Security Committee with the Election Center, participating in national conversations about cybersecurity at conferences that include a diverse array of election stakeholders (state and county officials; election administrators; technology and security experts).

**National Association of Secretaries of State** – Hart regularly exhibits our technology at NASS events, engages in conferences, attends substantive sessions on election topics – including security – and produces a bi-annual white paper submission.

**National Association of State Election Directors** – Hart regularly exhibits our technology at NASED events and participates in election security sessions.

Together with our customers, Hart will continue to protect the integrity of voting and elections with modern, secure voting innovations.

Please see the Verity Knowledge Base article “Verity Security Features” included with this response.

The Verity Voting system embodies best practices for security, accuracy, and reliability – for every component and for all data – at every step of the election workflow.

Unlike older, first-generation voting technology, Verity is designed with the latest security protocols at its core. Throughout the design, development, and testing process for this all-new system, Hart has been able to leverage the newest, most up-to-date technologies and best practices for security.

Verity's best practices for security include:

- All applications are whitelisted
- Secure BIOS (“verified boot software”).
- Only verified components can be installed.
- Only verified components can be executed.
- Intrusion detection – physical and application security.
- Flexible, strong role management.
- Data is signed to verify source.
- Two-factor authentication.
- NIST-validated encryption.
- Redundancy, randomization of cast vote records.

### **Intrusion Detection – Physical and Application Security**

Verity employs a “defense-in-depth” strategy, whereby security architecture and code is reused by all applications, whether on the desktop or on voting devices. In this manner, Verity security covers physical, electronic, software and policies for Verity customers, across the system.

Throughout the system, the code implements controls for:

- Authorization
- Authentication
- Auditing
- Non-repudiation
- Validation
- Tamper resistance and evidence

Verity implements a AAA security model separate from the host operating system and the jurisdiction's infrastructure. This includes role-based access control (RBAC). Verity software applications (Data/Build, Central, and Count) are physically separated from the intranet and extranet in order to reduce network-based risks.

All Verity data, including logs, cast vote records, and election definitions, are digitally signed using FIPS 140-2 SHA-2 NIST approved methods to ensure non-repudiation. These methods include:

- Implementing a local network that is not connected to other office or public networks.
- Role-based access control (RBAC) user accounts.
- Two-factor authorization for critical actions.
- All Verity Voting software applications are installed on PC workstations in a “kiosk mode” setup that does not allow users direct access to the operating system.

The integrity of critical operating system files is protected by:

- Implementation of the Enhanced Write Filter features of Windows 7 embedded to prevent changes
- A system validation tool feature that enables users to verify the hashes on critical files of the operating system
- A secure BIOS on polling place devices that ensures the system will only boot into the authentic Verity environment.

The following methods restrict access to data and programs on the voting system so that they are only accessible to authorized personnel:

- Authentication is internal to Verity.
  - User accounts and passwords are managed by Verity.
  - Account management is not part of an application.
- Authorization is role-based:
  - Each user has a role.
  - Each independent operation is authorized by the system based on role.
  - NIST-validated security pattern.
- Verity Key, a secure electronic token, serves two functions:
  - The physical token, which is similar in appearance to a USB device, provides secure transport of secrets such as keys for digital scanners.
  - Two-factor authentication at critical points in the election workflow. Verity Key represents “something you have” (the physical security device) and it requires “something you know” (a passcode). Each Key is associated with a single election.
- All user and system actions are logged and auditable.



### Secure device configuration

To securely access the Verity device touchscreen interfaces to configure the device for an election, the user must have access to the passwords that have been designated for the election and to the appropriate Verity Key.

The Verity Key is a two-factor authentication device used to secure access to critical functions throughout the election. Two-factor authentication means that users must have the physical Key device (similar to a USB token) and must know the passcode associated with the physical security device. This electronic device is required for access to secure functions.

Once the device is configured for the election, the poll workers must know the password configured for the election in order to perform administrative functions such as opening and closing the polls.

## Secure voting devices

Verity Voting devices have a variety of physical access controls and safeguards to ensure that sensitive equipment is accessed only by authorized personnel – not by voters. These access controls include keyed locks, features to support the use of tamper-evident seals, port protection, and non-standard electrical wiring in strategic areas.

- Each Verity Voting device includes a compact and durable integrated storage case for secure, easy transport and storage.
- Two keyed locks restrict a user’s ability to open the integrated case that encloses each voting device (“the suitcase”).
  - The exterior handle to each case was purposely designed with two mated parts that are protected by zip-tie, tamper-evident seals to prevent unauthorized users from opening the case.
  - Inside each voting device case, the compartment that contains the removable storage media device (vDrive) that contains the election definition, cast vote records, and audit logs is secured by a keyed lock.
  - The removable, dockable tablet display inside each voting device includes a keyed locking mechanism to manage the storage, removal, and configuration of the tablet. In addition, the dockable display is further protected with an electromechanical control that notifies the system software of any unauthorized disconnection.
  - Some ports on Verity voting devices (USB ports for peripheral printers, etc.) are non-standard in physical shape (that is, they are “keyed”) and accommodate only Hart-proprietary cables and devices in order to prevent attempts to insert unauthorized, standard, commercial-off-the-shelf cables or devices into Verity voting machines.
  - On/off power switches are located on a rear panel with a recessed indent that allows only authorized users to quickly and easily identify power controls. In our legacy systems and with Verity, Hart has always chosen to use physical access controls and design features other than keyed locks to prevent unwanted shutoff of devices. We have done this primarily to reduce the risk that needed voting devices could be rendered unavailable for use if a required key for power controls is misplaced. This design strategy has been successful, as proven in almost two decades of elections and millions of votes cast using Hart voting technology.
  - In addition to physical access controls that prevent foreign devices from being inserted into Verity device ports, the internal components of the devices are also electronically wired in non-standard ways; foreign devices will be recognized, and related ports will be disabled in response to unauthorized insertions.



## Secure vote scanning, recording, and tabulation

Hart’s precinct scanner (Verity Scan) scans two-sided ballots and multiple-page ballots while recording the event as one ballot cast. To preserve the security and multi-sheet feeding protection capabilities of the system, ballots that have content on only one side include security barcodes on the blank side of the sheet. In addition to the public counter that indicates the number of ballots cast for the election on the Verity Scan device, Verity Scan provides a sheet counter that indicates the number of sheets that have been scanned on the device for that election.

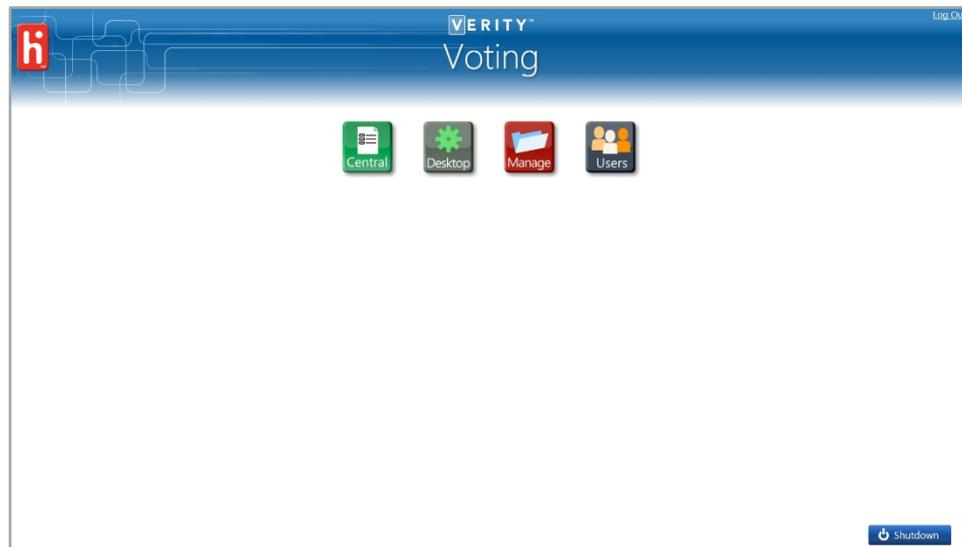
Hart’s central scanning solution (Verity Central) ensures that only those ballot styles specific to the current election are recorded and tabulated.

Verity Central rejects ballots that are not printed for the election that is currently defined and open on the system. The election identifier is embedded into the security barcodes on the ballots. Verity Central checks this election identifier on each ballot that is scanned and rejects any ballots that do not contain the correct election identifier.

## Secure Access

Multiple security mechanisms prevent the modification of software or internal configurations at all times, and all Verity Voting software applications are installed in a secure “kiosk” mode that disallows user access to the operating system of the workstation on which the application is installed.

Verity user roles adhere to the principle of least privilege.



Verity requires that all users have unique login credentials including but not limited to a unique username and unique password. Verity password complexity and login rules are configurable by the election official administering the system.

### Secure data

Verity's stringent security features protect election data at every step of the election process. Verity has undergone a thorough source code review and rigorous security testing to achieve certification from the U.S. Election Assistance Commission and numerous state certifications.

### Secure data transmission



Cast vote records are digitally signed to allow for validation of the data and are written to the vDrive in Verity Scan and Verity Central. Once the CVRs are written to the vDrive, they cannot be written again. After a vDrive is written in Verity Scan or Verity Central, it is taken to the Verity Count station for tabulation and additional reporting.

If the vDrive to which the CVRs were written is lost, Verity Scan or Verity Central can create a Recovery vDrive that can be read into the Verity Count application.

### Secure destruction of data

Hart utilizes several professional data destruction firms when disposing of electronic-based media or paper-based media in which data security is a concern.

## 52. Describe the physical security features of your proposed vote counting device system.

Please see all the above info under the Security, and Cybersecurity section.

## 53. Describe the cyber security features of your proposed vote counting device solution.

First and foremost, none of the hardware or software included in Hart's Verity Voting system is neither connected nor able to connect to the internet. Therefore, "cyber" security is not applicable. However, specific device digital security includes a secure boot process on all Verity Voting devices. Software startup for each Verity voting device may take several minutes, due to security and data integrity checks performed by the Verity software. This process is included in the design of the Verity voting system to verify the authenticity of the software before allowing it to operate on the device, and is known as a secure boot process. The secure boot process includes write protection technologies to prevent the installation of viruses and malware, and employs integrity checks on all software applications before they are allowed to run. These integrity checks validate that the software is in fact the trusted, authorized program (and not a malicious program with the same name).

Please see below answers for additional information on the various and vast security features Hart has designed into our Verity Voting system.

#### 54. Describe what steps your company has taken to ensure that your system cannot be hacked.

Verity security is robustly designed to protect the integrity of the voting equipment and ballots at every step. Hart's security-in-depth protocol has been proven in multiple certifications and deployments and meets the requirements of the EAC. Hart follows a strict trusted build process per VVSG guidelines. We also maintain locked-down system controls consisting of secure boot and whitelisted objects within the filesystem. Both these security measures ensure that a constructed device cannot be mutated following a trusted build – Verity is a locked-down system that ensures the voting device cannot be compromised.

Verity Voting devices have a variety of physical access controls and safeguards to ensure that sensitive equipment is accessed only by authorized personnel – not by voters. These access controls include keyed locks, features to support the use of tamper-evident seals, port protection, and non-standard electrical wiring in strategic areas.

- Each Verity Voting device includes a compact and durable integrated storage case for secure, easy transport and storage.
- Two keyed locks restrict a user's ability to open the integrated case that encloses each voting device ("the suitcase").
- The exterior handle to each case was purposely designed with two mated parts that are protected by zip-tie, tamper-evident seals to prevent unauthorized users from opening the case.
- Inside each voting device case, the compartment that contains the sensitive flash memory device (vDrive) that contains the election definition, cast vote records, and audit logs is secured by a keyed lock.
- The removable, dockable tablet display inside each voting device includes a keyed locking mechanism to manage the storage, removal, and configuration of the tablet. In addition, the dockable display is further protected with an electromechanical control that notifies the system software of any unauthorized disconnection.
- Some ports on Verity voting devices (USB ports for peripheral printers, etc.) are non-standard in physical shape (that is, they are "keyed") and accommodate only Hart-proprietary cables and devices in order to prevent attempts to insert unauthorized, standard, commercial-off-the-shelf cables or devices into Verity voting machines.
- On/off power switches are located on a rear panel with a recessed indent that allows only authorized users to quickly and easily identify power controls. In our legacy systems and with Verity, Hart has always chosen to use physical access controls and design features other than keyed locks to prevent unwanted shutoff of devices. We have done this primarily to reduce the risk that needed voting devices could be rendered unavailable for use if a required key for power controls is misplaced. This design strategy has been successful, as proven in over a decade of elections and millions of votes cast using Hart voting technology.
- In addition to physical access controls that prevent foreign devices from being inserted into Verity device ports, the internal components of the devices are also electronically wired in non-standard ways; foreign devices will be recognized and related ports will be disabled in response to unauthorized insertions.
- User input is limited to the touchscreen interface.
-

- All network communication is authenticated and encrypted using Transport Layer Security (TLS).
- Application whitelisting prevents unauthorized executable code from being executed on the device.

## 55. How would anyone know if your system had been hacked?

If Hart’s Verity Voting system were ever compromised, the malicious action would be captured via the system’s audit logs. The logs capture all user and system actions. These logs are auditable.

Please see below for an example of our System Log Report. The following shows the user adding an election, unsuccessfully attempting to log in, changing the time and logging out.

System Log Report Page 19 of 26

Run Time 2:21 PM  
Run Date 04/18/2019

Row	Log Date & Time	Device ID	Component	User	Elec Id	Event	Event Data
182	2019-04-18T14:12:25-05:00	W1494024503	Election Manager FD3.2.D29.338 2	SMyers	0	Menu Item Selected	Menu Item Name: Add
183	2019-04-18T14:12:38-05:00	W1494024503	Election Manager FD3.2.D29.338 2	SMyers	0	Election added	The election 'New Election' (1499) was added: ElectionId:'1499', IsVersioningEnabled:'True', Title:'English Text: 'New Election', Name:'New Election', Status:'OpenForEditing', Type:'General', Jurisdiction:'English Text:'Your jurisdiction name here'', ShortTitle:'New Election', ShortJurisdiction:'Your jurisdiction name here', Id:'f1534a08-ac6-481c-9780-c6ce38b70d71'
184	2019-04-18T14:12:47-05:00	W1494024503	Election Manager FD3.2.D29.338 2	SMyers	0	Application closed	
185	2019-04-18T14:12:48-05:00	W1494024503	VerityData FD3.2.D29.338 2	SMyers	0	Application opened	
186	2019-04-18T14:12:48-05:00	W1494024503	VerityData FD3.2.D29.338 2	SMyers	0	View loaded	View name: Select Election chevron
187	2019-04-18T14:12:48-05:00	W1494024503	VerityData FD3.2.D29.338 2	SMyers	0	View loaded	View name: Elections task
188	2019-04-18T14:12:53-05:00	W1494024503	VerityData FD3.2.D29.338 2	SMyers	0	Election Open	The election 'New Election' (1499) was opened.
189	2019-04-18T14:13:17-05:00	W1494024503	VerityData FD3.2.D29.338 2	SMyers	0	Application closed	
190	2019-04-18T14:13:20-05:00	W1494024503	Verity	none	0	User Authorization	User 'SMyers' has been logged out
191	2019-04-18T14:13:56-05:00	W1494024503	Verity	none	0	User Authorization	Login Failed for user 'user'
192	2019-04-18T14:14:00-05:00	W1494024503	VerityDesktop FD3.2.D29.338 2	SMyers	0	Set OS time	Old time = 04/18/2019 14:14:59 UTC -6:00 Central, DST: Enabled; new time = 04/18/2019 14:14:00 UTC -6:00 Central, DST: Enabled
193	2019-04-18T14:14:01-05:00	W1494024503	VerityDesktop FD3.2.D29.338 2	SMyers	0	Application closed	
194	2019-04-18T14:14:05-05:00	W1494024503	Verity	none	0	User Authorization	User 'Smyers' log in is successful

d
c
c

## 56. What intrusion detection capabilities does your system have?

Verity employs a “defense-in-depth” strategy, whereby security architecture and code is reused by all applications, whether on the desktop or on voting devices. In this manner, Verity security covers physical, electronic, software and policies for Verity customers, across the system.

Throughout the system, the code implements controls for: authorization; authentication; auditing; non-repudiation; validation; tamper resistance and evidence.

Verity implements an AAA security model separate from the host operating system and the jurisdiction's infrastructure. This includes role-based access control (RBAC). Verity Build, Verity Central, and Verity Count are physically separated from the intranet and extranet in order to reduce network-based risks.

All Verity data, including logs, cast vote records, and election definitions, are digitally signed using NIST-validated FIPS 140-2 methods to ensure non-repudiation. These methods include:

- Implementing a local network that is not connected to other office or public networks.
- Role-based access control (RBAC) user accounts.
- Two-factor authorization for critical actions.

The integrity of critical operating system files is protected by:

- The Secure Boot security standard prevents the system from starting if the master boot record, operating system, or firmware has changed.
- The operating system, Windows Embedded 7, is custom-built to include only components required to support our software and hardware.
- Enhanced Write Filter prevents the operating system and the firmware from being permanently altered.
- A system validation tool feature enables users to verify the hashes on critical files of the operating system.
- A secure BIOS on polling place devices ensures the system will only boot into the authentic Verity environment.
- All Verity Voting software applications are installed on PC workstations in a “kiosk mode” setup that does not allow users direct access to the operating system.

The following methods restrict access to data and programs on the voting system so that they are only accessible to authorized personnel:

- Authentication is internal to Verity.
  - User accounts and passwords are managed by Verity.
  - Account management is not part of an application.
- Authorization is role-based:
  - Each user has a role.
  - Each independent operation is authorized by the system based on role (RBAC).
  - NIST-approved security pattern.
- Verity Key, a secure electronic token, serves two functions:
  - The physical token, which is similar in appearance to a USB device, provides secure transport of secrets such as keys for digital scanners.
  - Two-factor authentication at critical points in the election workflow. Verity Key represents “something you have” (the physical security device) and it requires “something you know” (a passcode). Each Key is associated with a single election.
- All user and system actions are logged and auditable.



## 57. What log of activity is available for the device?

The Verity Audit and System logs, which can be exported to CSV, consolidate a plethora of information which can be sorted, exported and analyzed. For example, the Device Log can be filtered by polling place, by device, and by date/time range to view specific activity on that device.

### **Audit Log**

This is a comprehensive log of all activity that has occurred.

Each entry includes the following detail:

- Date/time of event
- User logged in at time of event
- Component name and full version number
- Device serial number or workstation ID
- Event name (in plain text)
- Event detail data (in plain text)

*Note: The user can filter the Data/Time range of entries before viewing the report.*

### **Device Log**

Device logs display all information contained in the voting device application and system log entries. The device log can be filtered by polling place, by device, and by date/time range.

### **System Log**

This is a comprehensive log of all activity that has occurred on a workstation or network that is not election-specific. Each entry includes the same details as the audit log, listed above.

Please see #55 for log examples.

## 58. What data is recorded in the activity log?

Please see the answer to 57 above.

## 59. What type of security features do you have for testing the device before an election, starting up an election, and closing the election?

Verity security is robustly designed to protect the integrity of the voting equipment and ballots at every step. Hart's security-in-depth protocol has been proven in multiple certifications and deployments and meets the requirements of the EAC. Hart follows a strict trusted build process per VVSG guidelines. We also maintain locked-down system controls consisting of secure boot and whitelisted objects within the filesystem. Both these security measures ensure that a constructed device cannot be mutated following a trusted build – Verity is a locked-down system that ensures the voting device cannot be compromised.

Please see the Verity Knowledge Base article “Verity Security Features” included in this response for specific security features that flow through the testing, opening and closing the election.

Please also see this Security, and Cybersecurity section in its entirety for the security measures Hart has designed and developed into our Verity Voting system.

- a. If user names and passwords are required, describe the requirements and levels of authority.

### User roles in Verity

User roles determine what a user can do within each Verity application. Each user role has specific privileges, or abilities, within that application. Under the Roles menu, authorized users can edit existing user role definitions, or add custom user roles to meet their jurisdiction's needs. Below are the default user roles available for each application, and the default privileges available to each user role. In addition to performing the actions themselves, in some cases, full access users can also provide on-the-spot authorization to allow other users to perform the action.

### Ballot Programming (Verity Data) user roles

- Viewer: Can view all the screens in Verity Data, print reports, and print ballot previews; Viewers cannot change election data.
- Full Access: Can perform all Viewer operations and add, change, and delete election data.

### Ballot Programming (Verity Build) user roles

- Viewer: Can open elections, preview ballots, and print reports for proofing purposes. Viewers cannot modify content, configurations, or elections.
- Media Creator: Can perform all Viewer tasks. Can create Keys and vDrives and print ballots.
- Full Access: Has full access to Verity Build.

## Central Scanning (Verity Central) user roles

- Viewer: Can open elections and tasks and print and export reports. Cannot modify content, configurations, or elections.
- Resolution Board: Can open and view ballots with voter intent issues to determine validity, resolve ballots, and run reports.
- Operator: Has full access to Verity Central, including the ability to review ballots with voter intent issues, change election status, restore elections, and perform all tasks for ballot scanning and generating reports.
- Full Access: Has all the abilities of Operators, plus additional access for administrative setup and closing polls.

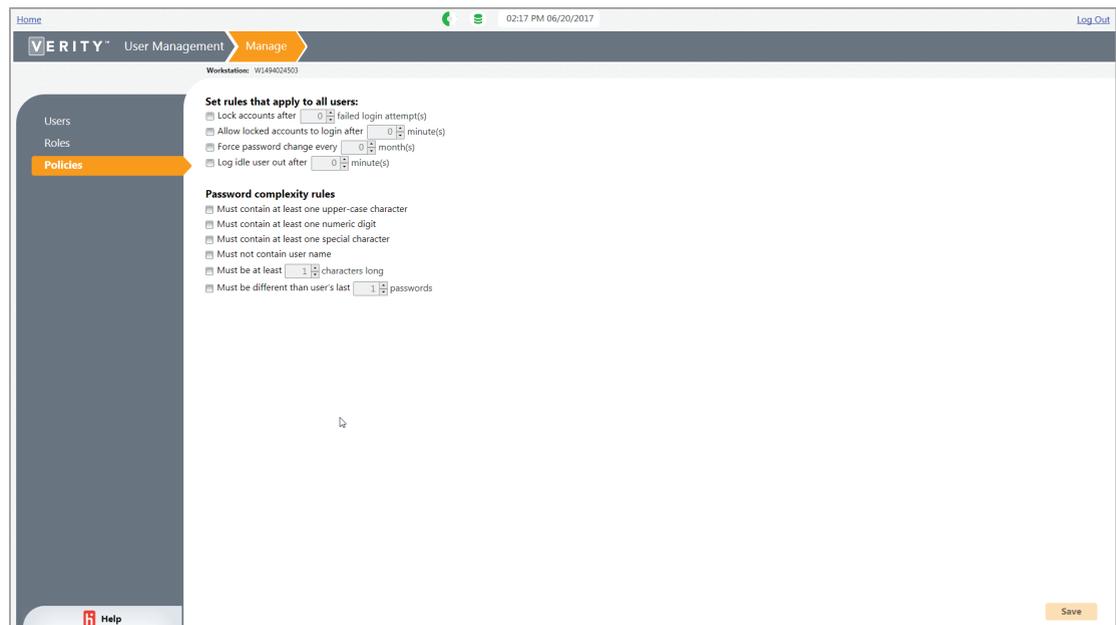
## Tabulation and Reporting (Verity Count) user roles

- vDrive Reader: Can open elections and tasks to read vDrives.
- Operator: Can open and manage elections and tasks, generate reports, and update polling place data and precincts. Can import and export data, resolve ballots, and access the auditing dashboard.
- Full Access: Has unrestricted access to all aspects of Verity Count. Can manually record votes, access all aspects of reports and the auditing dashboard.

## Desktop, User Management, and Election Management roles

These applications each have only one user role; full access to each of these applications can be granted (or not) to each user.

## Policies menu



The Policies menu enables authorized users to set user login rules, and password

complexity rules that apply to all users.

For further detail, please see the Verity Knowledge Base article “Password Management” included with this response.

**60. Has there been any code review that comprehensively sought to detect Trojans in the software of your proposed vote counting device or its corresponding election management software? If so, please describe that review and provide reports.**

At a minimum, all code review is performed in triplicate:

- By Hart when the software is developed and tested;
- By the independent lab that is approved by the federal Election Assistance Commission (EAC) as part of the federal certification process;
- By the EAC as part of the final certification process.

All independent test reports for Hart’s Verity Voting system are available on the federal Election Assistance Commission (EAC) website – <https://www.eac.gov/voting-equipment/system-certification-process-s/>

Any code modifications required by the EAC take place during the certification process.

Additionally, any state that certifies Hart’s Verity Voting system may perform code review as part of its independent certification process. Some states (i.e., California) post the certification reports on their voting system certification websites.

**61. Is there a mechanism to determine whether there are any back doors in the software of the vote counting device? Has this mechanism been exercised on the hardware and software of this proposed device? Can it be demonstrated?**

Verity software and devices are heavily scrutinized during certification testing. The Voting System Test Lab (VSTL) functionally tests each component looking for vulnerabilities. Additionally, every line of code is reviewed by a VSTL examiner.

Verity also includes multiple security measures designed to protect against a malicious actor installing a back door after the software has been deployed:

- Whitelisting technology prevents any unauthorized software from running
- Secure Boot technology on devices checks all software components to ensure they have not been altered. If alterations are found, the device will not boot.
- Enhanced Write Filter technology on devices ensures that, were running software to be altered, those alterations wouldn’t persist beyond a reboot.
- Verity’s system validation tool allows users to audit software file hashes against expected values to confirm that no changes have been introduced.

Verity's best practices for security include and security features include:

- No remote access into the system by Hart or anyone else
- Only verified components can be installed or executed
- Intrusion detection – physical and application security
- Flexible, strong role management.
- Two-factor authentication.
- NIST-validated encryption.
- Redundancy, randomization of cast vote records.
- User authentication is internal to Verity.
- User accounts and passwords are managed by Verity.
- Authorization is role-based, each independent operation is authorized by the system based on role, and all user and system actions are logged and auditable.

## 62. What type of audit data is produced by your vote counting device?

When the media device holding the cast vote records (vDrives) are read into the tabulation and report software (Verity Count), Verity Count also captures the audit logs from the precinct scanner (Verity Scan) voting devices, to facilitate easy review of all audit log information from a single location. This is another of Verity's many features that improve audibility, transparency, and voter confidence in the integrity of elections.

The Verity Audit and System logs, which can be exported to CSV, consolidate a plethora of information which can be sorted, exported and analyzed. For example, the Device Log can be filtered by polling place, by device, and by date/time range to view specific activity on that device.

### **Audit Log**

This is a comprehensive log of all activity that has occurred.

Each entry includes the following detail:

- Date/time of event
- User logged in at time of event
- Component name and full version number
- Device serial number or workstation ID
- Event name (in plain text)
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*Note: The user can filter the Data/Time range of entries before viewing the report.*

### **Device Log**

Device logs display all information contained in the voting device application and system log entries. The device log can be filtered by polling place, by device, and by date/time range.

## System Log

This is a comprehensive log of all activity that has occurred on a workstation or network that is not election-specific. Each entry includes the same details as the audit log, listed above.

### 63. Provide a copy of the independent testing laboratory certification report on the proposed vote counting device.

All independent test reports for Hart's Verity Voting system are available on the federal Election Assistance Commission (EAC) website – <https://www.eac.gov/voting-equipment/system-certification-process-s/>

### 64. Identify what states have provided certification to enable sales of the proposed vote counting devices within their state.

Sixteen states have certified Hart's Verity Voting system, with another five states in the process of certification.

Verity Voting system certified

- Washington
- Oregon
- Idaho
- California
- Utah
- Colorado
- Texas
- Minnesota
- Arkansas
- Mississippi
- Michigan
- Ohio
- Kentucky
- Tennessee
- New Jersey
- Virginia

Verity Voting system currently in the certification process:

- North Carolina
- South Carolina
- Pennsylvania
- Indiana
- Missouri

**65. Does your system meet the Voluntary Voting Systems Guidelines 1.1 approved by the U. S. Elections Assistance Commission Standards Board?**

Hart's Verity Voting System is federally certified to VVSG 1.0.

**66. How will your system meet the proposed new Voluntary Voting System Principles and Guidelines 2.0 published in the Federal Register on February 15, 2019?**

Hart is actively engaged with the EAC to help develop, improve and modernize the VVSG. We regularly participate in calls and meetings with the Technical Guidelines Development Committee (TGDC), and our team of election experts is now reviewing and drafting feedback on the VVSG 2.0 Principles and Guidelines currently out for public comment.

The final VVSG 2.0 requirements will not be defined until after the EAC is able to analyze and incorporate (where they choose) the feedback that is currently being provided. Only after final VVSG 2.0 standards are defined will manufacturers be able to assess if/how their systems either currently meet those standards or the cost and timeline associated with making the necessary revisions in order to meet them.

**67. If your vote counting device is unable to meet the Voluntary Voting System Principles and Guidelines 2.0 and its subsequent Requirements and Test Assertions, predict the costs and effort required to satisfy these new expectations?**

**a. Identify which principles/guidelines in 2.0 your device does not meet.**

Hart is actively engaged with the EAC to help develop, improve and modernize the VVSG. We regularly participate in calls and meetings with the Technical Guidelines Development Committee (TGDC), and our team of election experts is now reviewing and drafting feedback on the VVSG 2.0 Principles and Guidelines currently out for public comment.

The final VVSG 2.0 requirements will not be defined until after the EAC is able to analyze and incorporate (where they choose) the feedback that is currently being provided. Only after final VVSG 2.0 standards are defined will manufacturers be able to assess if/how their systems either currently meet those standards or the cost and timeline associated with making the necessary revisions in order to meet them.

**68. What elements of the vote counting device hardware and software are proprietary and what elements are off-the-shelf?**

Verity is a standalone, turnkey computing system in which the hardware and software systems perform as a holistic system required by the overall system's architecture. Hart provides all implementation, maintenance and support of the computing system, hardware and software. It is highly recommended, though not required, to purchase off-the-shelf elements of the Verity Voting system from Hart.

Items below marked with an asterisk (\*) are considered proprietary.

<b>Verity Voting System Accessories, Consumables and Parts</b>		
<b>Product Name</b>	<b>Product Description</b>	<b>List Price</b>
Verity Scan*	Precinct scanner	\$6,100.00
Verity Touch Writer*	ADA ballot marking device w/ printer	\$5,300.00
Verity Workstation (no monitor)	Workstation for use with software	\$5,55 0.00
Accessible Booth Transport Bag (Touch Writer)*	Verity Touch Writer Accessible Booth Transport Bag	\$ 85.00
Verity Touch Writer Accessible Booth w/ Transport Bag and Privacy Screens*	Verity Touch Writer Accessible Booth	\$ 430.00
Scan Calibration Kit*	Scan Calibration Kit	\$ 34.00
Secure Ballot Transport Bag*	Secure Ballot Transport Bag	\$ 50.00
Ballot Box Transport Bag*	Ballot Box Transport Bag	\$ 60.00
Ethernet Cable	Ethernet Cable	\$ 20.00
Verity Voting Device Shipping Box – Cardboard*	Verity Voting Device Shipping Box - Cardboard	\$ 45.00
Verity Build Dimensional Overlays*	Verity Build Dimensional Overlays	\$ 110.00
Verity Caddy Cover, 4' Wide*	Verity Caddy Cover, 4' Wide	\$ 250.00
Extender Plate*	Extender Plate	\$ 20.00
Verity Ballot Box w/ Transport Bag and Privacy Screens*	Verity Ballot Box	\$ 535.00
Verity Battery Charger, 1 Bay*	Battery Charger, 1 Bay	\$ 185.00
Verity Battery Charger, 6 Bay*	Battery Charger, 6 Bay	\$ 540.00
Verity Caddy with Casters, 4' Wide*	Verity Caddy w/ Casters, 4' Wide	\$ 740.00
Verity Caddy with Casters, 5' Wide*	Verity Caddy w/ Casters, 5' Wide	\$ 990.00
Verity Caddy Cover, 5' Wide*	Verity Caddy Cover, 5' Wide	\$ 250.00
<b>Consumables</b>		
Verity CMOS Battery	Coin battery for Verity voting device tablet	\$ 2.00
<b>Parts</b>		
Power Supply Cover*	Verity Device	\$ 7.50
Battery Door*	Door to cover rechargeable Verity battery	\$ 7.50
<b>Recommended items for spares or as consumables</b>		
Privacy Screen (Black)*		\$ 15.00
Hard Drive, 1 TB	Hard drive for Verity Workstation	\$ 600.00
Hard Drive Sled	Removable sled for installation of hard drive in Verity Workstation	\$ 350.00
USB Extension Cable*	Cable to protect USB ports on Verity Workstation	\$ 21.50
Verity Headphones	Headphones for Verity accessible units	\$ 20.00
Verity Key*	Electronic security token	\$ 109.00
Verity PM Kit*	Preventative Maintenance kit with CMOS battery, seals, and screws	\$ 2.50
Thermal Paper Roll (White)	Paper roll for voting unit	\$ 0.82
Verity Voting Device Battery*	Rechargeable battery for Verity voting device	\$ 102.00
vDrive	Flash memory card/audio card for use with Verity devices	\$ 66.00

Verity Voting System Accessories, Consumables and Parts		
Product Name	Product Description	List Price
Custom USB Printer Cable*	Custom cable to connect Verity Touch Writer and printer	\$ 10.00
Daisy Chain Cable*		\$ 20.00
Verity Power Cord*		\$ 4.60
Verity Power Supply*	Power supply for Verity voting device (power cord sold separately)	\$ 89.00
Removable Verity Booth Leg*		\$ 42.00

69. Describe the software platform on which your vote counting device is built.

The Verity Voting system is built using SQL Server and Windows Embedded 7.

70. Describe how Logic and Accuracy (L&A) Testing is performed.

- a. Include a description of the procedure and time required to prepare and test the device prior to the election? (New Hampshire requires a pre-test during the week before the election.) RSA 656:42
- b. Is the pre-election test process run on the device in election mode or is it run in a "test" mode? Explain.

Logic and Accuracy testing (LAT) with the Verity Voting System is typically performed using election tasks set up in “test” mode, with test mode ballots and vDrives.

**Logic and Accuracy testing: An Overview**

A properly run LAT tests the logic of tabulation system-wide and includes:

Voting on devices that capture Cast Vote Records (Verity Scan) and scanning of paper ballots in Verity Central (if applicable).

*NOTE: In accordance with Hart best practices, the accessible ballot marketing device (Touch Writer) is not a required component in a LAT, since it does not capture Cast Vote Records. However, each jurisdiction must follow state and local guidelines.*

- Tabulating the votes in Verity Count and comparing Count application reports to expected outcomes. When conducting the LAT, consider the following best practices:
- In Verity Data, create an Election Day Polling Place specifically for the LAT and assign all precincts to this polling place (or, work with Hart Ballot Production Services to do so, if applicable). Predefine your LAT device(s) with this Polling Place.
- Run the complete LAT from the same election used for the Official election.
- Perform the LAT with Test mode vDrives. Use the vDrive Planning Worksheet and remember to plan for an appropriate number of Test mode vDrives.

### **Suggested materials and supplies**

- LAT checklist, log, and envelope.
- Test mode vDrives (created in Build or provided by Hart) - 1 per Verity Scan and Central workstation used in the LAT.
- Test deck of ballots printed from Verity Build and marked according to State/local requirements
- Spare blank test ballots
- At least one Verity Scan (more as needed according to your LAT plan)
- Verity Central workstation and scanner (if applicable)
- Verity Count workstation (if applicable)

### **Recommended LAT procedures**

Complete the following steps to perform an LAT. Follow state requirements governing the prior announcement and publication of the test date, time, and location.

#### ***Hand-count the Test Deck***

Hand count the test deck of pre-marked paper ballots, taking overvotes and blanks into account. If you use Hart Ballot Production Services, Hart may provide a pre-marked test deck, however you must always follow State and local jurisdiction rules governing the test deck composition and marking pattern (for example, local rules may dictate that additional test ballots are required). You may wish to keep a spreadsheet or matrix of the votes marked in the test deck for each ballot option, according to your State requirements.

#### ***Prepare the equipment***

Predefine the Verity voting devices. You must make sure each device being used in the LAT is predefined with your LAT Polling Place ID. You may use more than one set of Verity voting devices in order to speed up the testing, but you do not need to test each device in an LAT. Each voting device does need to be tested if performing functionality testing. Again, all LAT procedures presented here are superseded by State election law, rule, and code.

### ***Vote on the Verity devices using the test deck***

- 1) Print the Zero report on the Verity voting device(s).
- 2) Open polls on the voting device(s).
- 3) Scan the test deck using the Verity Scan.
- 4) Close polls on the voting device(s).
- 5) If you are performing a LAT with devices only, print and save the device Tally report and verify against the expected results. For jurisdictions that include Verity Count tabulation in their LAT, this step may be optional depending on local or State procedure.

*NOTE: The Tally report will only be available if you have checked "Allow Tally" when configuring the election in Build.*

- 6) If you are performing a LAT that includes Verity Count tabulation, remove the vDrive from Verity Controller and/or Verity Scan and take to the Count workstation for tabulation.

### ***Process ballots in Verity Central***

- 1) On the Central workstation, log into Verity and import the signed election export file from Build using the Election Management application.
- 2) Click Home to exit Election Management and then open Verity Central.
- 3) Open the election in Central.
- 4) Create and open a task for LAT 1 (Task type: Test).
- 5) Print and file a Zero report, if required.
- 6) Scan the test deck in Central.
- 7) Print and save a Batch Detail report for later reference.
- 8) Resolve undervotes, overvotes, and write-ins (if applicable), according to the test plan.
- 9) Write all ballots to the Test mode vDrive.
- 10) Remove the vDrive and take to Count for tabulation.

### ***Tabulate in Verity Count***

- 1) On the Count workstation, import the signed export file from Build using the Election Management application, if you have not already done so.

- 2) Click Home to exit Election Management and open Verity Count.
- 3) Open the election in Count.
- 4) Create and open a task for LAT 1. (Task type: Test)
- 5) Print and file a Zero Report.
- 6) Read in vDrives from Verity Scan device(s) and Verity Central.
- 7) Tabulate the vDrives in Count.
- 8) Resolve write-ins in Count (if applicable).
- 9) Print and file a Cumulative report, including overvotes, undervotes, and write-ins (if applicable).

### ***Compare results***

Compare the Cumulative Report from Count and the reports from Scan and/or Central against the expected results based on the test deck. The reports should match exactly the expected results from the test deck. If the results do not match, identify any discrepancy and reconcile or re-run the LAT.

### **The LAT Log**

The LAT log includes a checklist of reports that should be printed and filed with the LAT materials and a place to record the pertinent LAT data and signatures of participants. Complete and file the LAT log and other paperwork in a labeled envelope with the vDrives used for the LAT. In some jurisdictions additional LATs are required on Election Day. Regardless of whether this is the case in your jurisdiction, it is important to keep the materials from the first LAT organized and available if needed.

### **Performing subsequent LATs with devices only**

If your LAT is conducted with devices only, and your jurisdiction requires additional LAT(s) on Election Day, you can prepare the test deck and equipment, vote the test deck, and verify the device reports as you did before. Compare and validate the results against those from the first LAT. Again, all LAT procedures presented here are superseded by State election law, rule, and code.

### **Performing subsequent LATs with Verity Count**

If your jurisdiction requires a second (or third) read of the LAT vDrives on Election Day, follow the recommended procedures below. Compare and validate the results against those from the first LAT. Again, all LAT procedures presented here are superseded by State election law, rule, and code.

- 1) Open the election in Count.



- 2) Create and open a task for LAT 2 (and LAT 3, if applicable). (Task type: Test)
- 3) Print and file a Zero report.
- 4) Read in vDrives from the first LAT.
- 5) Tabulate the vDrives in Count.
- 6) Resolve write-ins in Count (if applicable)
- 7) Print and file a Cumulative report, including overvotes, undervotes, and write-ins (if applicable).
- 8) Compare the Cumulative report against the reports from the first LAT and reconcile if necessary.

## TRANSPARENCY

### 71. Please describe the features of your system that help achieve transparency for voters and election officials.

Hart intentionally designed and developed transparency into our Verity Voting system. Transparency features include:

- User-friendly audit log review. When the media devices (vDrives) are read into the tabulation and reporting software application (Verity Count), Verity Count also captures the audit logs from the precinct scanner (Verity Scan) and the central scanning system (Central), to facilitate easy review of all audit log information from a single location. This is one of Verity's many features that improve audibility, transparency, and voter confidence in the integrity of elections.
- Auditing dashboard enables easy CVR data export. CVRs can be exported according to a robust list of user-defined filters and exported in raw XML data format or as human-readable PDF reports. This tabulation and reporting software application (Verity Count) feature increases auditability, reduces risk, and increases transparency and voter confidence. No other voting system offers such an easy-to-use dashboard for exporting data according to highly-customizable filters.
- Anywhere, anytime hash code download from the Verity voting devices, providing reassurance to all that the software loaded on the hardware is the same as what has been certified by and is on file with the federal Election Assistance Commission.

### 72. Is the source code available to anyone participating in a public penetration test if one signs up for the test and agrees to (a) the terms to see the code and the technical documents outline the architecture and protocols, and (b) a disclaimer that says no information contained in them can be made public?

No. Hart's source code is not available to the general public. It is securely stored at a third-party location as part of the federal Election Assistance Commission (EAC) testing protocol.

### 73. Can the general public readily obtain information about the testing process?

Yes, the public can obtain information about the testing process performed by the EAC. This information is available via the EAC website – <https://www.eac.gov/voting-equipment/system-certification-process-s/>

### 74. Can the general public perform testing on the components and systems?

The public can take part in functionality testing, should the State allow and desire this participation. A functionality test verifies the ability of the Verity device to work as intended; functionality tests should be completed at least once per year or before every election. Built-in functionality tests are available on each Verity device.



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## STAGE OF PRODUCT LIFECYCLE

### 75. Identify the dates and upgrades made in each version upgrade of your proposed vote counting device.

Hart's Verity Voting system has successfully completed six federal Election Assistance Commission (EAC) certification tests. The certification dates were:

- May 12, 2015 – version 1.0
- April 27, 2016 – version 2.0
- December 12, 2016 – version 2.2
- March 13, 2017 – version 2.2.1
- May 22, 2018 – version 2.2.2
- March 15, 2019 – version 2.3

The specific updates for each version certification may be found on the EAC website at <https://www.eac.gov/voting-equipment/certified-voting-systems/>.

### 76. Describe what hardware and software can be considered upgradable as new hardware and software becomes available?

Hart's Verity Voting system hardware (Verity Scan, Verity Touch Writer), software applications (Verity Data/Build, Count, Central) and workstations on which the applications are installed are considered upgradable. Upgrades can be performed following one of two general methods, at the jurisdiction's preference: self-service (by the jurisdiction) or full service (by Hart).

### 77. Describe where your proposed vote counting device is in its useful product lifecycle?

Hart's all-new Verity Voting system was first federally certified in 2015. With the anticipated 15-year useful life, Verity is in the first 1/3 of its lifecycle.

### 78. Provide the expected useful life of your proposed vote counting device.

Hart's Verity Voting system is designed to have an expected useful life of 15 years.

**79. Describe the company's commitment to supporting the equipment and software of the proposed vote counting device, and keeping it supplied with spare parts.**

Having been in the industry since 1912, Hart is the most tenured election solutions provider in the U.S. and has a long practice of creating partnerships with our customers – guiding and supporting them through whatever election challenges may arise. The Verity Voting system is Hart's second voting system to be introduced to the market. Our legacy system, the Hart Voting System, was first used in 2001 and continues to be used in various jurisdictions across the nation. Although Hart announced an end of life (the Hart Voting System is no longer manufactured) several years ago, we will continue to support the Hart Voting System until the last customer has transitioned to Verity. Some of our customers state they will use the Hart Voting System through the next two presidential election cycles. This support philosophy means we work closely with our manufacturing partners to communicate product needs and stock needed inventory levels years in advance. This methodology has worked well for customers and Hart for the past decades and we will continue this practice throughout the life of the Verity Voting system.

**80. Describe any plans for future enhancements to your proposed vote counting device.**

Hart maintains a significant R&D investment in both the current version Verity Voting system product line as well as “next generation” products. Ongoing investment in the current product line is driven by the collective interests of a large installed base combined with the pursuit of new customers for which the current version is a proven and highly competitive solution in the election marketplace. Investments in “next generation” products are predominantly driven by advanced research, the assessment of emerging technologies and long-term market trends that will shape the future of elections and voting.

Hart prides itself on being market-driven. In practical terms, it means Hart is committed to building products from the “outside in”. While Hart has an extensive patent portfolio and a deep history of technical innovation, the company is neither interested in nor can it afford to bring new products to market for which a business case does not exist.

Hart has adopted and follows the Pragmatic Marketing Framework (PMF) which is readily acknowledged worldwide as the standard for Product Management within technology-based industries. The comprehensive PMF spans the entire product lifecycle (from concept to end-of-life) and prescribes a disciplined process for defining and developing market-driven products including roles, responsibilities and methods for capturing and communicating product requirements.

Hart Product Managers (and their Engineering counterparts) are solely responsible for the roadmap and direction of their product lines including gathering and prioritizing requirements. Product Managers solicit and manage the “funnel” for their products from multiple sources including:

- Market Research
- Prospect Research
- Customer Support Incidents
- Customer Surveys
- Federal Regulations
- State Regulations
- Competitive Analysis

As a result, Hart Product Managers and their Engineering counterparts maintain an active portfolio of product development projects in various stages – concept, specification, design, prototype, development, test and release.

Areas of both current and “next generation” product investment include (but are not limited to):

- Poll Worker Management
- Accessibility Solutions
- Advanced Auditing Tools
- Advanced By-Mail Solutions
- State Standards
- Federal Standards

Hart recognizes that continuous innovation, in the pursuit of more secure, usable and reliable voting systems, is in our collective best interests as long as the need for new technologies is market-driven and can be fulfilled cost-effectively. Hart welcomes the opportunity to share its product strategy with the State and to collaborate on roadmap, products and its priorities.



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## HARDWARE - TECHNICAL

### 81. Describe how the voter's hand marked ballot is read by the scanner.

#### Voting with Verity Scan

Verity Scan is a polling place-based scanner used to scan and cast paper ballots whether they are hand-marked, or marked using the accessible ballot marking device (Verity Touch Writer)

- 1) The voter fills in the selection box to the left of their choices completely using blue or black ink.
- 2) When the voter has finished marking their ballot, they take the ballot to Verity Scan to cast their ballot.
- 3) Verity Scan is ready to scan when you see the Ready to Use screen. The voter removes the ballot privacy sleeve (if applicable) and inserts the voter ballot into Verity Scan. Flashing green arrows indicate the location and direction of the scanner feed. Ballots must be fed short-edge first, but may otherwise be scanned in any orientation.
- 4) After scanning their ballot, the voter waits a moment while the ballot is processed.
- 5) The voter's ballot has been cast when Verity Scan displays the American flag. If enabled, an audible chime will also sound.

*IMPORTANT: In elections with multi-sheet ballots, voters must receive all sheets for their ballot. Voters should be instructed to scan all sheets of their ballot, even if they have made no choices on a particular sheet.*

### 82. Can your precinct count device count a preprinted ballot marked using a printer and New Hampshire's Accessible Voting System, one4all? We can provide a sample if necessary.

No. The Verity Voting system is a purpose-built voting system designed for use with devices and software developed by Hart. Other vendor's accessible voting system pre-printed ballots are not able to be counted by our devices.

### 83. Describe whether or not the voter's ballot from your company's accessible voting system could be read by the ballot counting device. Does your accessible voting system produce a marked paper ballot this can be counted by your precinct ballot counting device?

Yes, Hart's Verity Voting system includes an accessible ballot marking voting device (Touch Writer) that prints marked paper ballots which can be read by the precinct scanner (Scan).



84. Does your machine read any type of mark on the ballot, whether pencil, black pen, red pen, marker, etc.? Describe any colors or types of marks that your device will not consistently count.

Yes, Hart's precinct scanner will read any type of mark on the ballot. Hart's best practice is to use blue or black ink; however, other marks can be read. It is highly recommended to avoid using yellow highlighter.

85. Can your device be programmed to count ballots where ranked-choice voting is in use?

Yes. Hart's ballot programming software applications (Data/Build) allows for ranked choice voting. If using Ranked Choice voting, there will not be an option to set the number of valid choices.

86. Can your device be programmed to properly count races where the voter has the right to vote for multiple candidates? For example, a six seat state representative district where voters are instructed to vote for no more than 6.

Yes, Hart's ballot programming software applications (Data/Build) allows for setting the number of valid choices.

87. Can your device print a ballot on demand?

Hart offers an on-demand ballot printing device that can be used in the polling location.

88. How much does the ballot counting device weigh?

Hart's precinct scanner with rechargeable batteries weighs 29.1 lbs.

89. How much does the base for the ballot counting device weigh?

The separate, collapsible ballot box used with Hart's precinct scanner weighs 25.6 lbs.

90. If there is a separate storage container, how much does the separate storage container weigh? How much does the container with the device and any accessories that are to be stored in the container, weigh?

Please see #89. The precinct scanner device and ballot box together weigh 54.7 lbs.

91. If your system includes a collapsible ballot box, how many ballots can it hold?

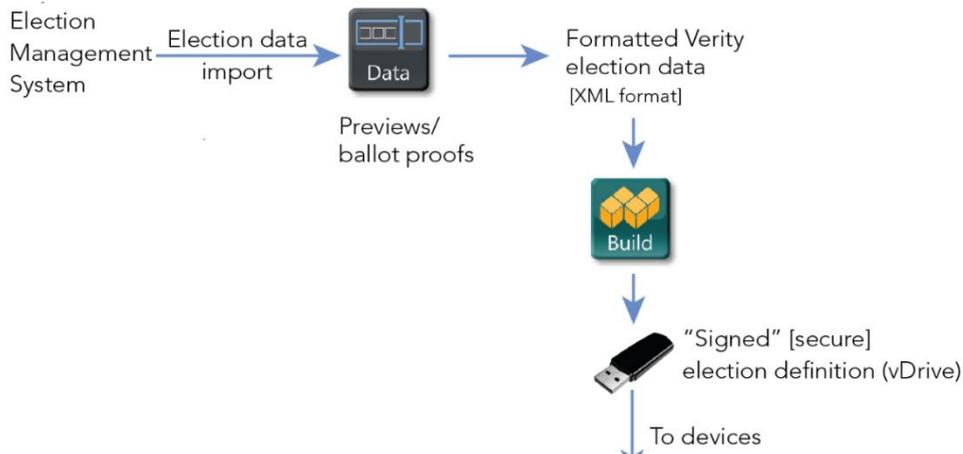
The secure Verity Ballot Box holds up to 4,000 8.5 x 17-inch ballots. The Ballot Box also includes an emergency ballot bag, accessed by the voter via the emergency ballot slot, which holds up to 1,000 ballots.

## ARCHITECTURE

### 92. Please describe the software architecture of your vote counting device.

The below diagram reflects the architecture and process of the Verity Voting system components. The quantity of components varies depending upon the jurisdiction.

#### 1 Election Definition



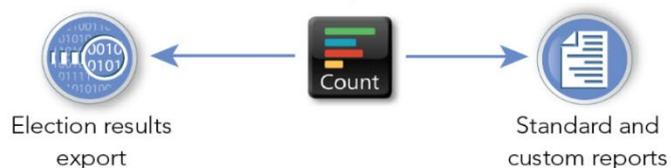
#### 2 Absentee Ballot Process



#### 3 Election Day Process



#### 4 Tabulation/Results Reporting



93. Please describe the capability of your device and its software to be upgraded as advances in technology, software, and law require changes or make changes prudent.

Annual licensing and support fees cover both minor and major software upgrades modifications through the term of the agreement, as described in the sample Verity Master Agreement included with this response.

Options Hart offers for upgrading Verity Voting software include facilitating upgrades in compliance with New Hampshire law. The computers that the software runs on have easily-removable, sled-nested hard drives that simplify the upgrade process.

Upgrades that do not require Hart personnel onsite are included as part of the annual license and support fee. If the jurisdiction would like Hart onsite for an upgrade, there is a service charge for our onsite time.

94. The US Department of Defense research agency, the Defense Advanced Research Projects Agency (DARPA), has announced that it has invested about 20 million dollars into re-engineering voting machine hardware, including such things as computer chips and circuits, to make many of the known techniques for penetrating and manipulating the systems impossible. News accounts suggest that the project will be complete and recommendations issued to equipment vendors in about two years. New Hampshire's current ballot counting device is aging, but still working effectively. What, if any, reasons exist for New Hampshire towns and cities to buy new technology now versus waiting for the next generation that will incorporate DARPA's work?

Hart intends to pay close attention to any project that brings to bear the technical and security expertise housed within DARPA.

Though important questions remain as yet unanswered regarding whether and how the project will fit with the EAC's VVSG and certification process, should the project ultimately be successful, we look forward to leveraging any design features – hardware or software – that may improve the integrity and transparency of Hart's Verity Voting system.

## BACKUP AND RECOVERY, BATTERY

95. Describe the backup/recovery features of your proposed vote counting device system.

Backup/recovery features of Hart's precinct scanner (Verity Scan) include:

- Battery backup included in with each scanning device
- The ballot choices of each voter are stored instantly upon acceptance of the scanned ballot (evidenced by the American flag displayed onscreen) as Cast Vote Records (CVRs). CVRs are stored in multiple locations for security and auditability, risk mitigation, and disaster recovery.
- If the media device (vDrive) that stores the CVRs is lost, damaged, or missing vote data (stranded ballots), a recovery vDrive can be created by accessing the Administrator menu on the voting device itself.

96. Should the polling place lose power for longer than the device's battery capacity and the device shuts down, then power is restored, will the record of ballots cast up to the moment of power loss be available?

Yes. All ballots accepted by the device (evidenced by the American flag displayed after each successful ballot scan) are instantaneously stored as a cast vote record and not adversely affected by a power outage or battery capacity.

a. In this situation, can the device be put back into service and ballots cast into a ballot box be fed into the device for counting?

Yes. The device can be put back into service using the AC/DC power or the installation of a new battery (battery replacement can be easily accomplished by a poll worker) and ballots cast using the emergency ballot slot can be fed into the device.

97. Does your precinct scanner have an integral battery backup that will keep the device in operation in the event of loss of power?

Yes, Verity devices include a battery backup.

a. If yes, how long will the device run on battery?

The battery lasts a minimum of two hours, as required by the VVSG.

98. Can the battery be replaced if it has/will run out of power?

Yes. The battery can be easily replaced by a poll worker or other election staff if it has run out of power.

99. Describe how a battery is replaced, including the time required.

Batteries can be changed at the polling location in well under 30 seconds, following these simple steps:

- 1) Ensure the device is powered off; unlock and remove the device tablet.
- 2) On the back of the tablet, open the battery door.



- 3) Connect the battery. The tab on the connector coming from the battery must snap



over the tab on the wire coming from the tablet.

- 4) Situate the battery in the device and close the battery door.

Please see the Verity Knowledge Base article “Battery Best Practices” included with this response.

100. Assume system failure at the voting site during the day. Which failures can be recovered from, and which failures require alternative procedures to capture prior votes that are now inaccessible? If the failure is catastrophic, the device cannot be restored, can the data in the memory device be read by a laptop or desktop computer?

If a precinct scanner (Verity Scan) device fails, ballots do not need to be rescanned. All cast vote records are stored in real time on the media device (vDrive) installed in the Verity Scan. vDrives are used to transfer digital ballot styles from the Verity election definition software to Verity Scan, and to transfer cast vote records from Verity Scan to Verity software for tabulation. Each Verity Scan has its own vDrive.

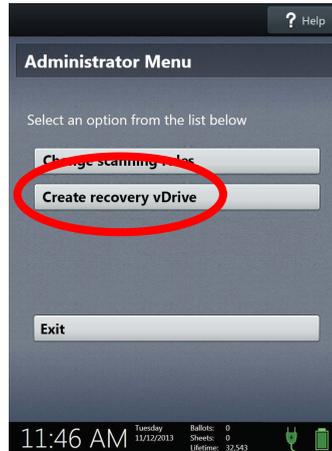
If damage occurs to a Verity Voting device that causes the device to no longer be operable, Hart recommends that the device is replaced. Replacing a device may be the most efficient way to ensure voters' timely access to a working voting device, provided that a spare device is available to replace the one being taken out of service. It is of utmost importance to follow local procedures and rules regarding chain of custody and the replacement of equipment at the polling place.

The below best practices are recommended for device replacement:

- Record the serial number for the device that is being replaced on an Out of Service Equipment tag and affix the tag to the device. Log a full description of the problem on the Equipment Chain of Custody form or equivalent.
- Predefine spare devices for the correct polling place before they are deployed, thus verifying the polling location has access to the correct ballot styles. Each polling place is associated with one or more precincts (or precinct splits). Each precinct or precinct split is in turn associated with a particular ballot style.
- Follow local procedures when creating/reading recovery vDrives, and/or retrieving vote and audit data from replaced or replacement equipment.

If the Verity vDrive in the malfunctioning Verity Scan device is damaged, a recovery vDrive can be created.

- 1) Access the Administrator menu (passcode required) on the Verity Scan device, and then select Create recovery vDrive.



- 2) Insert a vDrive that has not been used previously in the election. Next, select the election data you want to recover, then tap OK.



- 3) Wait while the data is written to the vDrive. Then tap OK when prompted.



- 4) Remove the vDrive from the device. The vDrive can now be read into Verity Count and tabulated.

a. If yes, what software will read the memory device?

Verity Count is the federally certified Verity software application that tabulates and reports cast vote records stored on Verity flash memory modules (vDrives).

b. If only proprietary software can read the memory device, what is the cost to purchase that software?

The standard retail price for the tabulation and reports software application (Verity Count) is dependent upon the number of registered voters. Current retail pricing is shown below. An annual license and support fee also applies.

Product	Up to 10,000 RV	10,001 – 50,000 RV	50,001 – 250,000 RV	250,001+ RV
Tabulation and Reporting – standalone	\$6,000.00	\$12,000.00	\$13,500.00	\$15,000.00
Tabulation and Reporting – networked	\$3,000.00	\$6,000.00	\$6,750.00	\$7,500.00

c. What format are the results or vote totals data stored in?

Hart’s tabulation and reporting software (Verity Count) organizes and exports data in a variety of formats including but not limited to TXT (delimited-separated), CSV, XLSX, PDF, and XML/EML so that the jurisdiction can upload or provide data to third party systems with minimal intervention. Additionally, Verity Count produces certain results reports (Cumulative, Canvassing, Precinct) in HTML format. CVR results can be easily exported in XML format from Verity Count’s auditing dashboard to support easy auditability by third parties.



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## BALLOT BOX CAPACITY /STORAGE

101. What is the capacity of the ballot box that is integral to the base your device sits on at an election?

The secure Verity ballot box holds up to 4,000 8.5 x 17-inch ballots. The Ballot Box also includes an emergency ballot bag, accessed by the voter via the emergency ballot slot, which holds up to 1,000 ballots.

102. Describe any available options, e.g. capacity with and without a removable lockable box inside.

Available as an option, Hart offers a secure ballot transport bag which can be placed inside the ballot box. The bag holds up to 2,000 ballots and provides a method for poll workers to transport ballots back to the elections office without needing to touch or arrange the ballots.

103. Describe the size, setup and storage requirements for your proposed ballot counting device system.

Hart's Verity Voting system devices are completely self-contained in a compact, secure case – easy to transport store. The devices are also stackable, further minimizing storage needs.

The measurements of the precinct scanner are listed below.

The dimensions of the closed integrated carrying case (“suitcase”) of each Verity device are 18.8 inches wide x 15.6 inches deep (17.4 inches deep including handles) x 7.7 inches high. The suitcase provides for secure, durable protection during transport.

Verity voting equipment is easy to transport in ordinary vehicles, minimizing specific vehicle transportation requirements.

The collapsible ballot box used with each precinct scanner (Verity Scan) folds to just 6 inches thin.



Please see the Verity Knowledge Base Article “Equipment Handling Best Practices” included with this response.

### Setting up the Verity Scan

- 1) Assemble the ballot box, if this has not been done already.
- 2) Place the Verity Scan on the ballot box, aligning footpads with the indentations. The handle on the Verity Scan must face the front of the ballot box.
- 3) Reach inside the ballot box and pull the cord down and away from you to lock the lid and the Verity Scan in place.
- 4) Close and lock the front ballot box door.
- 5) Follow local procedures to remove the tamper seal from the Verity Scan handle, if applicable. Unlock the case (if locked). Open the case and remove the power brick and power cord from the storage compartment. Close the compartment and case.
- 6) Plug the power cord into the power brick, and then plug the power brick into the back of the Verity Scan (flat side up).

*IMPORTANT: Do not plug the power cord into the wall yet.*

- 7) Open the Verity Scan case and lock the lid brace in place.
- 8) Unlock, unlatch and remove the tablet.
- 9) Seat the tablet in the cradle, tilt it back, and lock it in place.
- 10) Verify the Verity Scan device seals, per local procedure. Attach privacy screens to each side of the ballot box, if applicable.
- 11) Plug the power cord into AC power. A green light should illuminate on the power brick when AC power is present.
- 12) Press the red button on the back of the Verity Scan to power it on.
  - During the power on process, a Power-On Self-Test report will print on Verity Scan's built-in thermal printer. This report will indicate any hardware or connection issues; if any issues are noted, check connections and restart the device using the red power button.

104. Describe what equipment protection is integral to the included storage container and any external equipment protection that will be recommended.

**Best practices for device storage and transport**

- Store voting equipment on racks, off the floor. It is often helpful to position the devices so that the case label (and spare serial number label, if applicable) are visible for easy identification.
- Cover any storage racks to provide some protection from water damage from above (e.g., leaking roofs).
- In static storage (i.e., when not being transported), Verity devices may be stacked horizontally. When stacked in this manner, ensure that the feet of each Verity device are resting in the indentations provided on the top of the case of the Verity device below it.

105. Describe the physical storage requirements for your proposed vote counting device.

All Verity Voting equipment is compact, lightweight, and portable for easier, less costly equipment storage. All Verity voting devices include an integrated carrying case for secure, durable protection during storage and transport, and can be stacked for space-efficient storage.

The comparison below shows that the Hart Verity Voting system is more compact to store and to transport than other systems.

Polling Place Set-Up Volume		
Configured for Storage / Transport		
Single Polling Place		
Hart Verity	12.5	
Other System 1	16.9	35% LARGER
Other System 2	46.5	272% LARGER

(all measurements in cubic feet)

The total storage space needed is dependent upon the quantity of devices purchased by the jurisdiction.

106. How many devices in their storage containers can be stacked in one pile?

Verity devices may be stacked horizontally during storage, three devices high.

107. Is power required for storage?

No, power is not required for storage.

108. What storage temperature and humidity conditions are required?

**Device environmental standards (Temperature & Humidity)**

Operation: 50° F to 95° F, 5% to 85% non-condensing humidity

Storage: -4° F to 140° F less than 88% non-condensing humidity

109. What other storage requirements are there?

Please see #104 above.

As an option, Hart offers a secure storage caddy for storage/transport of voting devices and supplies. Some of our customer choose to purchase the caddy while others prefer to use other storage containers. Hart's storage caddies come in two sizes – 4 ft or 5 ft wide – and are 24" deep and 69" tall. The caddy can hold up to 1,000 lbs. and include adjustable shelves and doors designed for locking mechanisms.

110. Does your machine or its base have a slot (separate storage space) for ballots that will need to be hand counted? If yes, describe this storage, including its capacity.

The emergency ballot slot on the top of the ballot box feeds into the emergency ballot bag. The slot should remain sealed with a standard secure seal unless the precinct scanner cannot accept ballots. The secure emergency ballot bag, accessed via the emergency ballot slot, holds up to 1,000 ballots.



111. Is the slot to deposit a ballot to be hand counted open and directly accessible during the entire election? If not, what has to be done to put a hand count ballot in this storage area?

The emergency ballot slot on the top of the ballot box feeds into the emergency ballot bag. The slot should remain sealed with a standard secure seal unless the precinct scanner cannot accept ballots.

112. If you offer multiple models/sizes of ballot storage boxes, please provide dimensions, how many ballots each can hold, and the price for each?

Hart offers one size of collapsible ballot box for use with our precinct scanner. The ballot box has been designed for optimal use for all voters, including voters in wheelchairs who find the ballot box at a height that the voter can independently feed their ballot into the scanner. Each scanner includes one collapsible ballot box with a canvas storage/transport bag and a set of privacy screens. If additional ballot boxes are desired, the retail price is \$535.00 each (ballot box with storage/transport bag and privacy screens).

Once scanned by the voters, paper ballots are automatically deposited directly into the secure Verity Ballot Box, which holds up to 4,000 8.5 x 17-inch ballots. The secure emergency ballot bag, accessed via the emergency ballot slot, holds up to 1,000 ballots.



Verity Scan on Ballot Box



Verity Ballot Box (collapsed)

The ballot box collapses to 6 inches thin for easy transport and efficient storage.

Verity Ballot Box specifications:

Item	Measurement		
	Collapsed in bag (for transport/storage)	Collapsed	Deployed
Height (inches)	28.5	28.3	28.3
Width (inches)	26.5	26	26
Depth (inches)	5.5	5.2	23.3
Weight (pounds)	26.9	25.6	25.6



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## COMPANY EXPERIENCE AND CAPABILITY

113. Describe your company's history with a detailed description of your election expertise and experience in performing the services required, number of employees, and office locations.

Hart was founded in 1912 in Austin, Texas, where our headquarters remain. With more than 100 years' experience providing election solutions, Hart is dedicated to solving our customers' challenges using secure, forward-thinking technology. We introduced many "firsts" to elections. Today, Hart is a nationally recognized leader in election innovation, known for exceptional customer relationships and superior service.

Hart entered the elections industry in the early 1900's printing ballots for Texas counties and has grown to provide a complete range of elections products and services to a large network of customers in many states.

Hart is solely dedicated to providing election solutions to jurisdictions across the U.S. We support our customers in delivering lawful, equitable and accessible elections through our voting systems, polling place solutions, ballot printing services, and expert professional services.

Hart is expertly qualified to provide the full scope of products and services required by the State of New Hampshire. Hart is a nationally recognized leader in election innovation, serving more than 800 jurisdictions, with exceptional customer relationships and superior service. More than 100 jurisdictions have selected the Verity Voting system.

Hart is the voting system solution provider for two statewide systems including the State of Hawaii and the State of Oklahoma. We also provide full service voting solutions on a similar scale to two of the five largest counties in the United States (Harris County, Texas and Orange County, California) These large jurisdictions rely on Hart to manage complex, large scale voting systems and to conduct all the support services – training, repairs, Election Day assistance, and more – to sustain smooth ongoing election operations. Customer satisfaction is a hallmark of Hart's performance. Each year for the past eight years, over 90% Hart's customers have rated our service as excellent or above average.

We have a long history of serving jurisdictions across the nation – and the capacity to support the State of New Hampshire in successfully implementing a new voting system solution.

Hart's team includes 81 employees, including experienced project managers, training specialists, systems and software architects, software engineers, mechanical engineers, electrical engineers, quality assurance specialists, product managers, supply chain and manufacturing managers, customer support consultants, technicians, technical publication specialists, and others.

## Equipment manufacturing

Absolute quality is at the foundation of Hart products, from design to manufacturing.

Hart is the manufacturer of the Verity Voting system and contracts exclusively with IS-based manufacturers for Verity equipment production. Our manufacturing partners are global providers of vertically integrated electronics manufacturing services supplying solutions for aerospace, industrial controls and instrumentation, medical, semiconductor, networking, and telecommunications industries. The company operates full-service, high-tech facilities with dedicated areas for production, assembly, and material storage.

The manufacturing facilities are ISO 9001 certified. The facilities emphasis on world-class manufacturing and process engineering support from prototype to volume production has resulted in a highly scalable production line for Hart product with a demonstrated product yield consistently exceeding 99.7%.

## Customer-focused support

Selecting Hart as your new voting system provider assures the State of the most proven, up-to-date, accurate voting technology available combined with the superior services and support necessary for success. To that end, Hart brings the best of experience to the State's voting system project. We offer you a highly qualified team whose members are skilled in all areas of elections, electronic voting systems, and large-scale initiatives.

Highlights of our corporate election experience include the following.

- **Elections experience** – Hart has extensive, broad-based elections experience, including providing paper based and direct recording electronic voting systems, supporting optical scan voting systems, printing ballots, providing elections supplies kits, and providing information and support to counties. Hart was the first voting system vendor to field federally-certified digital scanning technology (as early as 2003) to dramatically improve mark recognition and auditability.
- **Project management** – Meeting client expectations is the core of our corporate commitment and project management philosophy. Hart Project Managers receive internal training regarding these duties. Additionally, we use the Project Management Body of Knowledge (PMBOK), developed by the Project Management Institute, to ensure our Project Managers are trained in, and follow, all industry-standard project management practices.
- **Risk mitigation** – Hart emphasizes risk management as a critical element of Project Management. Throughout all phases of the project, we constantly assess risks and implement mitigation strategies to address those risks. The Project Manager tracks and reports the risks weekly and addresses those risks using contingency plans that are defined when a risk is identified.
- **Change control** – Change control procedures deal with out-of-scope issues. When a consensus is gained that identifies an issue as out-of-scope, change control procedures are initiated to decide how to proceed. These procedures are defined during the Project Planning phase. If the decision is made to expand the baseline scope of the project to include an “out-of-scope” issue, the appropriate project contractual documentation must be updated, as well as the baseline scope definition.

- **Technical support** – On-site support personnel are fully trained in the technical aspects of the Verity Voting System and are further supported by technical staff at Hart’s Customer Support Center (CSC).
- **Training** – Hart has assembled a team of professional educators to design the training program supporting installations of the Verity Voting system. The training staff has experience in elections procedures, instructional technology, software application training, working with adult learners, and training for diverse educational backgrounds.
- **Research and development** – Hart’s research and development group has focused on the use of technology in elections for many years. Their skills include designing, engineering, programming, testing, and writing technical documentation.
- **Warehouse management and logistics** – Many Hart customers have benefited from our analysis and evaluation of warehouse workflow and storage needs.
- **Integration with legacy systems** – Hart has worked with jurisdictions to facilitate the import and export of data to legacy systems.

Hart has always been a very people-centered company. With the Verity Voting system, we extend that people-centric focus to the human-centered needs behind the technology: it is a system that offers simplicity, absolute confidence in the results, and enough flexibility to serve your needs for many years.

All work will be accomplished at Hart’s headquarters in Austin. Contact information follows:

Address: 15500 Wells Port Drive, Austin, Texas 78728  
Phone: 800.223.4278

**114. How long has your company been handling ballot counting device machines?**

Hart introduced our first digital precinct scanner (eScan) in 2003.

**115. Describe your company's expertise implementing solutions for large polling places containing a single precinct. (Large is defined as greater than or equal to 10,000 registered voters who will vote in one precinct/ polling place.) Identify what, if anything, you change in your recommended configuration for a large polling place.**

Hart has a proven and long-standing track record of managing large implementations with polling places containing a single precinct. We present our experience through the following partial list of valued Hart customers:

- The State of Hawaii
- The State of Oklahoma
- Denton County, Texas
- Harris County, Texas
- Orange County, California
- Hamilton County, Ohio
- Ramsey County, Minnesota
- Lancaster County, Pennsylvania
- Oakland County, Michigan



Detailed information for a few of the above-mentioned customers is included on the following pages.

In evaluating your choices for a new voting system for the State, you need to know that your election solution provider has the capacity and a proven track record to efficiently perform the transition to a new way of voting. Core components of implementing a system include: transparent, secure technology; training and implementation expertise; availability of support through election cycles; and the ability to partner in crisis management solutions.

On the following pages, we respectfully present several valued Hart clients as reference, including a case study on the successful paper-ballot voting implementation in Denton County, Texas. Hart is prepared to leverage our resources to the fullest to ensure that the State of New Hampshire will have successful and secure elections for years to come.

## THE STATE OF HAWAII

<b>Client name</b>	The State of Hawaii
<b>Engagement title</b>	Voting Equipment System
<b>Description of engagement</b>	Addressed the voting system requirements for the State and counties of Hawaii with a comprehensive, fully integrated system for the polling place and paper ballots for absentee-by-mail voting backed by project management, training, on-site service and support.
<b>Cost</b>	\$4,600,000
<b>Start – completion dates</b>	2004 – Ongoing (contract through Dec. 2020)
<b>Contact</b>	Mr. Scott Nago, Chief Election Officer
<b>Address</b>	802 Lehua Ave. Pearl City, HI 96782
<b>Telephone number</b>	808-453-8683

### Hart Solution

In September 2004, Hart began a project for the use of the Hart Voting System to support accessible voting for the State of Hawaii. Hart delivered and tested the equipment and conducted training for State staff and poll workers, fulfilling an aggressive schedule to use the system that same month for the Primary election. Hart worked closely with the State to implement the system, including integration with the legacy ES&S system.

In 2006, the State of Hawaii again leased the Hart Voting System for the September Primary Election and the November General Election. Hart provided ballot setup, poll worker training, and tabulation services, resulting in successful elections. Again, we delivered and tested the equipment and trained State staff and poll workers. We worked closely with the State to integrate our system with its ES&S paper ballot system.

In 2008, the State again leased the Hart Voting System, adding our digital scanning system for paper ballots. Based on its prior experience with Hart for accessible voting, the State of Hawaii chose to implement and use the entire line of Hart Voting System devices – the DRE, the digital in-precinct scanner and Central Count.

In 2010, Hart was awarded a multi-year contract by the State for the leasing of the Hart Voting System in its entirety. Hart is the sole vendor to supply election products and services to Hawaii voters through 2014. Our contract has recently been extended through 2020. Over the course of Hart’s partnership with the State, we have deployed and supported over 3,000 pieces of equipment. All work has been performed on time and within budget.

Over the course of Hart’s partnership with the State, we have deployed and supported over 3,000 pieces of equipment, using flexible financing options including leasing. In addition, for the last decade, Hart has worked with Hawaii on a wide range of system enhancements that were made available to all voters. All work has been performed on time and within budget.

## THE STATE OF OKLAHOMA

<b>Client name</b>	The State of Oklahoma
<b>Engagement title</b>	Voting System Equipment
<b>Description of engagement</b>	Addressed the voting system requirements for the State and counties of Oklahoma with a secure, comprehensive, fully integrated solution for paper ballot scanning, HAVA-compliant interface, high-speed central count paper-ballot scanning, robust software and a complete service package that included a documented professional training program.
<b>Cost</b>	\$14,030,935
<b>Start – completion dates</b>	2001 - Ongoing
<b>Contact</b>	Mr. Paul Ziriak, Director, State Board of Elections
<b>Address</b>	State Capitol Building, Room B-6 2300 N Lincoln Blvd PO Box 53156 Oklahoma City, OK 73152
<b>Telephone number</b>	405-522-6615

### Hart Solution

In 2011, after a comprehensive selection process, Hart was awarded the State’s voting equipment and services contract. This large, complex implementation featured a custom paper-ballot-based solution for new voting technology that was rolled out to all 77 counties simultaneously. Hart worked intensively with the state election board and county election boards and elections staff to understand the desired workflow and divisions of labor, and tailored a solution set to meet Oklahoma’s unique needs.



Hart produced a detailed plan that included all current processes, mapped them to new processes, and developed overall impact and mitigation strategies that imposed no additional burdens on either state or county staff.

Professional services Hart provided the State to support its election process included equipment deployment and setup, testing, training (staff, election officials, and train the trainer), and early voting, Election Day support and post-election activities.

Since initial award, Hart has provided a utility to be used with scanning software and a UOCAVA integration application. All work has been performed on time and within budget. Hart remains as election solution provider for the State of Oklahoma.

## DENTON COUNTY, TEXAS

<b>Client name</b>	Denton County, Texas
<b>Engagement title</b>	Voting System for Denton County, Texas
<b>Description of engagement</b>	Replacement of aging voting system with modernized voting equipment and implementation guided by Hart's change management expertise
<b>Cost</b>	\$8,204,604
<b>Start – completion dates</b>	2002 - Ongoing
<b>Contact</b>	Mr. Frank Phillips, Elections Administrator
<b>Address</b>	701 Kimberly Drive Denton, Texas 76208
<b>Telephone number</b>	940-349-3220

### Hart Solution

Denton County has been a valued part of the Hart Customer family since 2002, when Hart was awarded a contract for the replacement, modernization, and standardization of voting equipment in the County. In that first implementation, Hart provided a combined electronic and digital scan solution.



5-month transition to all-new, secure Verity

In 2017, Denton County decided to replace its aging voting system. In addition to seeking an all-new system with federal and state certifications, Denton County voters voiced their preference for a transition to all-paper balloting. This signaled a major shift in the County. Serving more than 472,000 registered voters from 179 polling places, the Elections Office for Denton County was adjusting to significant changes. Adding to the pressure: a five-month timeline for a smooth transition to a new voting system and method in time for the November 7, 2017 election – with a September election in the interim.

The County chose to stay with Hart, their experienced election solution provider, trusting our change management expertise and the all-new, secure, easy-to-use Verity system.

Hart was awarded a contract to provide the Verity Voting system to the County. Hart met Denton County's needs by implementing Verity for paper ballot voting, associated election management system (EMS) software, a blank, full-sized print-on-demand ballot component, a central scanning system, and an accessible voting component that enables voters with disabilities to vote in the same manner as other voters.



On November 7, 2017, Denton County conducted its first successful all-paper ballot election using Hart’s Verity system. Voters were pleased with the security and ease of casting their ballots. Today poll workers and election officials look forward to a long future with the easy-to-use system. The compact, lightweight Verity system is easy to store, transport, and set up, and it provides the paper trail that Denton County Commissioners deemed necessary.

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*“It was fantastic. Given the short time period from the contract signing to acceptance testing, staff training, and poll worker training, the election was a huge success.”*

– Frank Phillips, Elections Administrator, Denton County, Texas

## HARRIS COUNTY, TEXAS

<b>Client name</b>	Harris County, Texas
<b>Engagement title</b>	Direct Recording Electronic (DRE) Voting System, Optical Scan (OpScan) Voting System and Election Management (EMS) System for Harris County
<b>Description of engagement</b>	Addressed the requirements for the County with a secure, comprehensive voting system and a turnkey implementation.
<b>Cost</b>	\$14,030,935
<b>Start – completion dates</b>	2001 - Ongoing
<b>Contact</b>	Mr. Michael Winn, Elections Manager
<b>Address</b>	1001 Preston, 4th Floor, Houston, TX 77002
<b>Telephone number</b>	713-755-5792

### Hart Solution

The Harris County, Texas, transition to Hart dates back, yet in our continued relationship Hart has proven to be a reliable partner in crisis management. As the third most populous county in the U.S. and home to Houston, Harris County selected the Hart Voting System in the summer of 2001 to replace its punch card voting system countywide. The implementation was managed over several election cycles, culminating in 18 months with a full DRE implementation at the poll sites with ballots provided in three languages (English, Spanish, and Vietnamese) in a countywide general election.



Hart wrote the interface, working closely with County elections officials. This interface imported the punch card tabulation results into Tally, and then combined the vote totals with the Early Voting and by-mail vote totals into a consolidated vote total on a precinct-by-precinct basis. Tally also reported results into the statewide database maintained by the Texas Secretary of State and exported results to the County’s website for public viewing. All work was performed on time and within budget and the County was content in continuing to reap value from their system.

Then, in late August 2010, a three-alarm fire broke out in a County-owned warehouse, which housed the County’s entire inventory of election equipment. It was the worst election equipment disaster in U.S. history. With more than 10,000 pieces of election equipment destroyed and Early Voting for the General Election beginning less than six weeks out from the fire, the County leaned on Hart as their trusted election advisor. Hart deployed a Disaster Recovery Team that included representatives from Hart’s Professional Services and Supply Chain departments, all of whom carried expertise in procurement and implementation of election systems.

A production and implementation plan was put into place which included paper and electronic



voting systems. Just four days after the disaster, Hart began manufacturing replacement equipment for the County, a process which involved sourcing over 1,000 individual parts, building circuit boards, and assembling and testing. The replacement equipment was an exact match for that which the County lost – not a newer system with an additional learning curve for staff, volunteers, and voters.

Hart was able to rely on trusted relationships within our supply chain, which was critical to serving the critical needs of Harris County. In addition, Hart gave guidance to the task of setting up loans and other financial arrangements to get the project up and running. Working closely with the County and manufacturing partners, Hart was successful in providing the County with the full amount of equipment (3,500+ machines) for Early Voting and Election Day, with time to spare. Not a single polling place had to be closed, consolidated, or changed.

## ORANGE COUNTY, CALIFORNIA

<b>Client name</b>	Orange County, California
<b>Engagement title</b>	Direct Recording Electronic (DRE) Voting System, Optical Scan (OpScan) Voting System and Election Management (EMS) System for Harris County
<b>Description of engagement</b>	Addressed the needs of the County for a by-mail voting integration with a mix of COTS and proprietary elements. Proprietary elements include: the in-person voting devices, the software and firmware. The COTS elements are the PCs, workstations, PC and workstation peripheral devices (printers, cables, consumables), and the high-speed central scanners.
<b>Cost</b>	\$26,179,534
<b>Start – completion dates</b>	2003 – Ongoing
<b>Contact</b>	Mr. Neal Kelley, Registrar of Voters
<b>Address</b>	1300-C S Grand Ave. Santa Ana, CA 92705
<b>Telephone number</b>	714-567-5139

### Hart Solution

Orange County is the nation’s fifth-largest county with some 1.5 million registered voters and 2,200 precincts. This large jurisdiction relies on Hart to manage complex, large-scale voting systems and to conduct all election support services for the County – including training, repairs, Election Day assistance, and more – to sustain smooth ongoing election operations.



The Orange County installation by Hart is one of the largest electronic voting system installations in the nation.

Hart implemented the Hart Voting System in Orange County as a voting system that covers every facet of the elections process, including by-mail voting, Early Voting, and Election Day balloting. The voting system supports voting in the five languages required by the County: English, Spanish, Vietnamese, Korean and Chinese.

For this implementation, Hart provided 9,000 eSlate electronic voting terminals and voting booths, with 1,750 accessible electronic voting units (referred to as Disabled Access Units); 1,750 electronic voting unit controllers (referred to as Judge’s Booth Controllers); and all associated hardware.

In addition to the numerous polling place voting units, Hart provided a comprehensive ballot management solution (BOSS and Tally) and Ballot Now, which is a fully integrated by-mail voting solution.

In the November 2006 General Election, 503,046 absentee ballots were issued – representing 33.6 % of registered voters. Since the initial installation in 2003, the County has added Verifiable Ballot Option (VBO) units from Hart to provide a voter verifiable paper audit trail of each vote cast on the eSlate electronic voting units.

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*“The number one thing that differentiates Hart is their reputation. Hart stands above the rest in service levels, responsiveness and the trust behind the system.”*

– Neal Kelley, Registrar of Voters, Orange County, California

- a. How many ballots/voters can a single precinct ballot counting device handle at an election?

The media device (vDrive) capacity for each precinct scanner is 9,999 duplex sheets (printed on two sides) per vDrive. A new vDrive is inserted for each election into each precinct scanner.

- b. At what number of voters or separate pages of ballots do you recommend that the polling place have two or more ballot counting devices? Currently, some large polling places using the Accuvote device have two or more devices operating to avoid lines of voters waiting to deposit their ballot(s).

Any polling place that has the possibility of processing close to 10,000 ballot sheets should have two precinct scanners, at a minimum. Additionally, depending upon the “acceptable” wait time for voters in the individual jurisdiction, more than one precinct scanner should be considered. It has been Hart’s experience that some jurisdictions are accepting of longer lines (wait times) than others.

116. Describe in detail the ownership of your company. In the event of any corporate, LLC or similar entity ownership, please identify the individuals who own shares constituting 10% ownership or more in such entities.

The figure on the following page provides more information about Hart’s corporate structure.



**HART INVESTMENT HOLDING COMPANY, INC.**

**HART INTERMEDIATE HOLDING COMPANY, INC.**

**HART INTERCIVIC, INC.**

<b>Ownership Entities</b>	<b>Directors</b>	<b>Officers</b>
<p><b>Hart Investment Holding Company, Inc.</b> A Delaware corporation owned 80% by H.I.G. Hart LLC *</p>	<p>Gregg Burt<sup>2</sup> Neil Tuch<sup>1</sup> Jeffrey Bohl<sup>1</sup> Phillip Braithwaite<sup>2</sup> Amanda Kalin<sup>1</sup> Derek Hutson<sup>2</sup></p>	<p>Gregg Burt – Chairman Phillip Braithwaite – Chief Executive Officer Julie Mathis – Treasurer and Chief Financial Officer<sup>2</sup> Jeffrey Bohl – Secretary and President</p>
<p><b>Hart Intermediate Holding Company, Inc.</b> A Delaware corporation owned 100 % by Hart Investment Holding Company, Inc.</p>	<p>Neil Tuch</p>	<p>Gregg Burt – Chairman Phillip Braithwaite – Chief Executive Officer Julie Mathis – Treasurer and Chief Financial Officer Jeffrey Bohl – Secretary and President</p>
<p><b>Hart InterCivic, Inc.</b> A Texas corporation owned 100 % by Hart Intermediate Holding Company, Inc.</p>	<p>Neil Tuch</p>	<p>Gregg Burt – Chairman Phillip Braithwaite – President and Chief Executive Officer Julie Mathis – Treasurer and Chief Financial Officer Jeffrey Bohl – Secretary and Vice President</p>

**Business Addresses**

<sup>1</sup> **H.I.G. Hart LLC**

c/o HIG Capital Partners IV LP MBR  
1450 Brickell Avenue, 31<sup>ST</sup> Floor  
Miami, FL 33131

<sup>2</sup> **Hart InterCivic, Inc.**

15500 Wells Port Drive  
Austin, TX 78728

\* Remainder of minority ownership at less than 10%

a. In what nation or state is your company incorporated?

Hart InterCivic is incorporated in Texas.

117. How many jurisdictions are currently using the device you are proposing for the State of NH?

To date, Hart’s precinct scanner (Verity Scan) has been deployed in 326 jurisdictions across the U.S.

118. Provide a list of current customers, the model of ballot counting device and type of voting system used and its implementation date.

All Hart customers listed below use our precinct scanner (Verity Scan) component of the Verity Voting system. The implementation dates range from 2015 (federal EAC certification) to 2019.

Account Name	Bridgewater Twp., MI	Crystal Township, MI
Ada County, ID	Brighton Township, MI	Dallas Township, MI
Adams Township, MI	Brighton, MI	Dalton Township, MI
Addison Township, MI	Brookfield Township, MI	Danby Township, MI
Alexandria, VA	Brooks County, TX	Davison Township, MI
Allen Township, MI	Burton, MI	Davison, MI
Amboy Township, MI	Bushnell Township, MI	Day Township, MI
Amherst County, VA	Callahan County, TX	Deerfield Township, MI
Ann Arbor Twp, MI	Cambria Township, MI	Delta Charter Twp., MI
Ann Arbor, MI	Camden Township, MI	Denton County, TX
Aransas County, TX	Campbell County, TN	DeWitt Charter Twp., MI
Argentine Township, MI	Campbell County, VA	DeWitt County, TX
Atlas Township, MI	Campbell Township, MI	DeWitt, MI
Auburn Hills, MI	Carmel Township, MI	Dexter Township, MI
Augusta Charter Twp., MI	Carroll County, KY	Dexter, MI
Bandera County, TX	Carson City, MI	Douglass Township, MI
Bath Charter Twp., MI	Casnovia Twp., MI	Duplain Township, MI
Bee County, TX	Cato Township, MI	Eagle Township, MI
Belding, MI	Cedar Creek Twp., MI	Easton Township, MI
Bellevue Township, MI	Charlotte, MI	Eaton County, MI
Belvidere Township, MI	Charlottesville, VA	Eaton Rapids Twp., MI
Bengal Township, MI	Chelsea, MI	Eaton Rapids, MI
Benton County, TN	Chesapeake, VA	Eaton Township, MI
Benton Township, MI	Chester Township, MI	Egelston Township, MI
Berkley, MI	Chisago County, MN	Essex County, VA
Berlin Township, MI	Clarkston, MI	Essex Township, MI
Big Stone County, MN	Clawson, MI	Eureka Charter Twp., MI
Bingham Township, MI	Clayton Charter Twp., MI	Evergreen Township, MI
Birmingham, MI	Clinton County, MI	Fairplain Township, MI
Bloomer Township, MI	Clio, MI	Falls Church, VA
Bloomfield Twp, MI	Cohoctah Township, MI	Farmington Hills, MI
Bloomfield Hills, MI	Comanche Nation, OK	Farmington, MI
Blue Lake Township, MI	Commerce Twp., MI	Fayette Township, MI
Boston Township, MI	Concho County, TX	Fenton Charter Twp., MI
Brandon Charter Twp., MI	Conway Township, MI	Fenton, MI



Ferndale, MI  
 Ferris Township, MI  
 Flint Charter Twp., MI  
 Flint, MI  
 Floyd County, VA  
 Flushing Charter Twp., MI  
 Flushing, MI  
 Forest Township, MI  
 Freedom Township, MI  
 Fruitland Township, MI  
 Fruitport Twp., MI  
 Gaines County, TX  
 Gaines Township, MI  
 Genesee Charter Twp., MI  
 Genesee County, MI  
 Genoa Charter Twp., MI  
 Grand Blanc Twp, MI  
 Grand Blanc, MI  
 Grand Ledge, MI  
 Green Oak Township, MI  
 Greenbush Township, MI  
 Greenville, MI  
 Groveland Township, MI  
 Hale County, TX  
 Hamburg Township, MI  
 Hamilton County, OH  
 Hamlin Township, MI  
 Handy Township, MI  
 Hart County, KY  
 Hartland Township, MI  
 Hazel Park, MI  
 Henderson County, KY  
 Henry County, VA  
 Highland Twp., MI  
 Hillsdale County, MI  
 Hillsdale Township, MI  
 Hillsdale, MI  
 Holly Township, MI  
 Holton Township, MI  
 Home Township, MI  
 Hopkins County, TX  
 Howell Township, MI  
 Howell, MI  
 Huntington Woods, MI  
 Independence Twp., MI  
 Ionia County, MI  
 Ionia Township, MI  
 Ionia, MI  
 Iosco Township, MI  
 Irion County, TX  
 Jefferson Township, MI  
 Jonesville, MI  
 Kalamo Township, MI  
 Keego Harbor, MI  
 Keene Township, MI

Kerr County, TX  
 King and Queen Co., VA  
 King George County, VA  
 Lake Angelus, MI  
 Laketon Township, MI  
 Lathrup Village, MI  
 Lebanon Township, MI  
 Lexington, VA  
 Liberty County, TX  
 Lima Township, MI  
 Linden, MI  
 Litchfield Township, MI  
 Litchfield, MI  
 Livingston County, MI  
 Lodi Township, MI  
 Lyndon Township, MI  
 Lyon Charter Twp., MI  
 Lyons Township, MI  
 Madison County, TX  
 Madison County, VA  
 Madison Heights, MI  
 Manchester Township, MI  
 Maple Valley Twp., MI  
 Marion County, TN  
 Marion Township, MI  
 Marshall County, KY  
 Martin County, TX  
 Medina County, TX  
 Michigan, State of  
 Milam County, TX  
 Milan, MI  
 Milford Charter Twp., MI  
 Montague Township, MI  
 Montague, MI  
 Montcalm County, MI  
 Montcalm Township, MI  
 Moorland Township, MI  
 Moscow Township, MI  
 Mount Morris Twp., MI  
 Mount Morris, MI  
 Mundy Township, MI  
 Muskegon Twp, MI  
 Muskegon County, MI  
 Muskegon Heights, MI  
 Muskegon, MI  
 Norfolk, VA  
 North Muskegon, MI  
 North Plains Twp., MI  
 Northfield Township, MI  
 Northumberland Co., VA  
 Northville, MI  
 Norton Shores, MI  
 Novi Township, MI  
 Novi, MI  
 Oak Park, MI

Oakland Charter Twp., MI  
 Oakland County, MI  
 Obion County, TN  
 Oceola Township, MI  
 Odessa Township, MI  
 Olive Township, MI  
 Olivet, MI  
 Oneida Charter Twp., MI  
 Orange Township, MI  
 Orchard Lake Village, MI  
 Orion Charter Twp., MI  
 Orleans Township, MI  
 Osage Nation, OK  
 Otisco Township, MI  
 Ottawa County, MI  
 Ovid Township, MI  
 Ovid, MI  
 Oxford Charter Twp., MI  
 Palo Pinto County, TX  
 Pierson Township, MI  
 Pine Township, MI  
 Pittsfield Twp., MI  
 Pittsford Township, MI  
 Pleasant Ridge, MI  
 Polk County, TX  
 Pontiac, MI  
 Port Arthur, TX  
 Portland Township, MI  
 Portland, MI  
 Potterville, MI  
 Prince William Co., VA  
 Putnam Township, MI  
 Rains County, TX  
 Ramsey County, MN  
 Rankin County, MS  
 Ransom Township, MI  
 Ravenna Township, MI  
 Reading Township, MI  
 Reading, MI  
 Reagan County, TX  
 Red River County, TX  
 Refugio County, TX  
 Reynolds Township, MI  
 Richland Township, MI  
 Richmond County, VA  
 Riley Township, MI  
 Roberts County, TX  
 Rochester Hills, MI  
 Rochester, MI  
 Rockbridge County, VA  
 Ronald Township, MI  
 Roosevelt Park, MI  
 Rose Township, MI  
 Roxand Township, MI  
 Royal Oak Twp, MI



Royal Oak, MI  
 Salem Township, MI  
 Saline Township, MI  
 Saline, MI  
 San Jacinto County, TX  
 Scio Township, MI  
 Scipio Township, MI  
 Sebewa Township, MI  
 Sharon Township, MI  
 Sidney Township, MI  
 Somerset Township, MI  
 South Lyon, MI  
 Southfield, MI  
 Springfield Twp, MI  
 St. Johns, MI  
 Stanton, MI  
 Sullivan Township, MI  
 Sunfield Township, MI  
 Superior Charter Twp., MI

Swartz Creek, MI  
 Sylvan Lake, MI  
 Sylvan Township, MI  
 Thetford Township, MI  
 Tom Green County, TX  
 Trimble County, KY  
 Troy, MI  
 Tyrone Township, MI  
 Unadilla Township, MI  
 Vermontville Twp., MI  
 Victor Township, MI  
 Vienna Charter Twp., MI  
 Walled Lake, MI  
 Waller County, TX  
 Walton Township, MI  
 Washtenaw County, MI  
 Waterford Twp., MI  
 Watertown Twp, MI  
 Webster Township, MI

W. Bloomfield Twp., MI  
 Westmoreland Co., VA  
 Westphalia Township, MI  
 Wheatland Township, MI  
 White Lake Twp., MI  
 White River Twp., MI  
 Whitehall Township, MI  
 Whitehall, MI  
 Williams County, OH  
 Windsor Charter Twp., MI  
 Winfield Township, MI  
 Wixom, MI  
 Woodbridge Twp., MI  
 Wright Township, MI  
 York Charter Twp., MI  
 Young County, TX  
 Ypsilanti Twp., MI  
 Ypsilanti, MI  
 Zapata County, TX

**119. Provide the total number of company employees dedicated solely to the support of election related products and services.**

Hart’s team includes 81 employees, including experienced project managers, training specialists, systems and software architects, software engineers, mechanical engineers, electrical engineers, quality assurance specialists, product managers, supply chain and manufacturing managers, customer support consultants, technicians, technical publication specialists, and others. All are dedicated solely to the support of election related products and services.

**120. Provide a description of your capacity to deploy your proposed voting system to a New Hampshire town/city within one month of your receipt of an order.**

Hart’s entire team stands behind the State’s success as you transition to Verity. This includes Hart’s more than 40 technical professionals, comprising experienced product managers, systems and software architects, software engineers, mechanical engineers, electrical engineers, quality assurance specialists, certification managers, supply chain and manufacturing managers, and technical support specialists.

A Project Manager is assigned to the jurisdiction immediately upon contract signing. The Project Manager reports to Hart’s Professional Services Manager. Hart’s VP of Customer Success serves as the Executive Project Sponsor, with holistic leadership provided by our President and CEO.

Hart’s proven project management practices are based on the Project Management Institute (PMI) framework and refined over our more than 18 years deploying election technology solutions for jurisdictions of all sizes.

Hart's Project Manager will serve as the primary point of accountability for Verity implementations. The Project Manager will work closely with the State's designated enterprise-wide system project implementation resource to refine and execute the Project Management Plan for the State and each of its jurisdictions.

The Project Management Plan provides details about each project task, including duration, start and finish dates, predecessors, and responsible parties. The plan provides detailed steps for the following processes and milestones:

- Project and Development Team meetings
- Hardware configuration, testing, and deployment
- Business process and workflow analysis
- System integration
- Voter education and outreach
- Training plan development
- Warehouse operation plan development
- Equipment delivery
- Training
- Conduct mock election, if needed (including every task required to prepare for and conduct the election, as well as post-election follow-up)
- Workflow and resource planning
- First election use (including every task required to prepare for and conduct the election, as well as post-election follow-up)

**121. Disclose any parts or services used in/necessary for the proposed device that are obtained from outside of the United States.**

The scan head on the precinct scanner is made in the U.S. The "suitcase" housing plastics and the tablet are made outside of the U.S.

**122. Describe the chain of supply, including country of production/modification, for each of your vote counting device's components.**

Hart strives to lessen as much of the human interaction as possible with any of our device components, thus increasing security around the supply chain. Our manufacturing partners across the entire Verity Voting system product line hold certifications and standards including:

- ISO 9901:2015
- ISO 13485:2016
- AS9100D
- MIL-STD-I-454
- ROHS Compliance and WEEE Compliance
- J-STD-001 / Class I, II and III Manufacturing
- IPC 610 & 620 Class I, II and III Manufacturing
- IPC/WHMA-A-620 Class I, II and III Manufacturing
- IPC 2221
- ANSI ESD S20.20

- ITAR Registration (received in 2008)
- FDA Registration (received in 2011)
- 21CFR820
- UL Registered
- UL Recognized
- UL 508A Panel Shop
- CUL Recognized

Components move directly from our manufacturing partners to our final assembly partner located in Austin, Texas. Component inspection takes place at our final assembly partner's plant at time of initial receipt, during the final assembly process and final testing.

**123. Has the Department of Homeland Security, NIST or an equivalent agency or entity provided a list of acceptable products that could be safely and securely be included in a voting system?**

Hart is actively engaged with various federal agencies dealing with voting systems and security. Additionally, Hart is a founding member of the Department of Homeland Security (DHS) Sector Coordinating Council, a formalized group of industry representatives who together act as a voice on election cybersecurity. In coordination with the DHS Government Coordinating Council, Hart participates in identifying potential security risks and implementing measures to eliminate those risks. Our engagement revolves more around best practices and processes vs. product specific information.

We are unaware of any federal agencies providing a list of acceptable products that could be included in a voting system.

**124. Provide the location, town/city and state, of the manufacturer of your proposed vote counting solution.**

Final assembly of our precinct scanner (Verity Scan) is completed in Austin Texas. This includes pre-assembly of major sub-assemblies, cabling, final assembly, burn-in, and final testing. The scan head on the precinct scanner is made in the U.S. The "suitcase" housing plastics and the tablet are made outside of the U.S.

**125. Explain your capacity to manufacture and supply replacement/ spare parts for your proposed vote counting device.**

Having been in the industry since 1912, Hart is the most tenured election solutions provider in the U.S. and has a long practice of creating partnerships with our customers – guiding and supporting them through whatever election challenges may arise. The Verity Voting system is Hart's second voting system to introduce to the market. Our legacy system, the Hart Voting System, was first used in 2001 and continues to be used in various jurisdictions across the nation. Although Hart announced an end of life (the Hart Voting System is no longer manufactured) several years ago, we will continue to support the Hart Voting System until the last customer has transitioned to Verity. Some of our customers state they will use the Hart Voting System through the next two presidential election cycles. This support philosophy means we work closely with our manufacturing partners to communicate product needs and



stock needed inventory levels years in advance. This methodology has worked well for customers and Hart for the past few decades and we will continue this practice throughout the life of the Verity Voting system.

126. Explain your philosophy and practice regarding supporting vote counting devices throughout their useful life.

Please see #125 above.

127. Disclose any actual or perceived conflicts of interest that may arise from the submission of your proposal for evaluation or from being approved by the New Hampshire Ballot Law Commission.

Hart is not aware of any actual or perceived conflicts of interest that may arise from the submission of our proposal for evaluation or from being approved by the New Hampshire Ballot Law Commission.

128. Has your company or any of its principals made political campaign contributions to any candidate who sought or is seeking elective office in New Hampshire or a federal office to be voted on by New Hampshire voters?

No, neither the company nor any of its principals have made political campaign contributions to any candidate who sought or is seeking elective office in New Hampshire or a federal office to be voted on by New Hampshire voters.



129. Disclose all voting system-related litigation that names your company or its principals as a plaintiff or defendant within the last ten (10) years.

Colorado Secretary of State

On February 9, 2016, the Colorado Secretary of State permanently adopted election rules under 8 CCR 1505-1 significantly different than the rules initially proposed. The adopted rules added exclusive and restrictive requirements and technical considerations that were only met by a single voting system.

Without expressly calling for a uniform voting system, the collective effect of the February 9, 2016 rules functionally mandated that all Colorado counties adopt a single uniform voting system whose requirements were only met by a single product. Hart InterCivic and ES&S therefore filed suit against the Secretary on May 23, 2016, seeking to halt the award and to contest the rules adopted by the Secretary. On August 3, 2016, the court declined to exercise jurisdiction. Hart and ES&S declined to appeal the case.

Texas Secretary of State

On July 6, 2017 Texas Representative Lyle Larson requested the Texas Office of the Attorney General to opine to change the definition of a ballot marking device (BMD) to be a direct record electronic (DRE) device if the BMD were used in conjunction with a precinct ballot scanner. This was an attempt to avoid the rules in Texas that define that only DRE voting devices can be used in countywide polling places. On October 4, 2017, Hart withdrew the matter, as the Texas Secretary of State intended to move forward with a revision to the DRE definitions.

## MAINTENANCE, TRAINING, AND SUPPORT

### 130. Describe your role-specific training for local election administration staff.

Hart has assembled a team of professional educators to design the training program that supports installations of the Verity Voting system. The training staff has experience in elections procedures, instructional technology, software application training, working with adult learners, and training for diverse educational backgrounds.

Training enables elections staff to quickly and easily make the transition to the new system, and training time required will be minimal, so staff can get on with their jobs with little interruption.

Hart's training concentrates on mastering the skills required to run smooth, successful elections with the Verity Voting system. Our goal is for the State to achieve a level of proficiency with Verity that allows for independent management of a successful election, if desired. Our training specialists are veterans of all aspects of elections, with the real-world experience to understand the needs of everyone involved and to communicate with them effectively.

Hart has a reputation among our customers of providing effective training that smooths the implementation process and puts easy-to-use training materials in the hands of staff and judges.

Our training is based on a leadership strategy that comes from the adult education background. We keep our training modules short, use hands-on and meaning-based instruction and help our adult learners make the knowledge transition from the known to the new. We have helped thousands of elections staff members move from legacy to new systems, including customers in some of the largest voting jurisdictions in the United States: Harris County, Texas; Orange County, California; Hamilton County, California; and the State of Oklahoma.

## Training Objectives

Hart's training program develops the election management skills required of permanent and temporary elections office staff, technical troubleshooters, and poll workers. Regardless of the audience, our proven curriculum is designed around the following objectives:

- **Task-orientation.** Our curriculum is designed in modules that reflect specific tasks commonly encountered during pre-election ballot programming; testing; equipment preparation, deployment and setup; and tabulation and reporting of election results. Our step-by-step procedures support specific tasks required to use the Verity Voting system successfully and efficiently.
- **Hands-on methods.** Our priority is to teach using hands-on training methods, and each module of training includes hands-on exercises.
- **Development of skills.** Instead of “telling,” we train. In other words, we teach skills and we test that learners have achieved a basic facility with them. Retention of information and mastery of skills, which are key objectives of our training methodology, require a level of attention and care that goes beyond merely “telling.”
- **High activity level.** Our training curriculum is active, with a mixture of “classroom lecture” and “hands-on lab.” A variety of activities ensures that trainees remain engaged.
- **Repetition and practice.** Our training includes a separate simulation section during which trainees will practice and review skills at their own pace. Written reviews are available as well.
- **Simulation of real-world procedures.** While training manuals are valuable resources, we are committed to training step-by-step procedures with materials, paperwork, and forms identical to those that will be used during real-world election operations. By gaining exposure to actual paperwork and procedures, elections staff, technical troubleshooters, and poll workers can feel more comfortable with the Verity Voting system and the associated documentation.

## Training Expertise

Hart conducts training for each new installation and recognizes that training expertise is a key factor in our users' consistent success.

A professional Hart trainer conducts all training in person for all office staff, troubleshooting personnel, and warehouse staff. To achieve the objectives outlined above, our trainers use a variety of training methods, including hands-on exercises, multi-media presentations, discussions, and role-playing.

The trainer provides feedback during exercises and provides various evaluation tools to help trainees assess their mastery and retention of new skills.

## Training Methodology and Curriculum

The Hart curriculum has been tested through many successful elections with millions of votes cast. Thousands of election officials and poll workers have experienced first-hand how the Hart curriculum provides the skills needed to master essential tasks from ballot preparation to voting equipment setup to Election Night tabulation and reporting.

While our training solution always begins with a proven standardized curriculum, the curriculum is also continuously refined and tailored to meet the changing needs of Verity Voting system customers.

Training courses include documentation/user guides, and a variety of other media, including graphic presentations. All these are designed with a single objective: to help trainees achieve proficiency and self-sufficiency in the tasks required to conduct a smooth, successful election with the Verity Voting system.

Training materials are provided to election officials during scheduled courses. Soft copies of the materials are provided to the jurisdiction in an easy-to-duplicate PDF format.

### **Courses Offered**

The Hart project manager and the trainer will work with election managers to determine which courses are most appropriate and which staff members should attend each course.

Typical audiences include permanent and temporary election office staff, information technology (IT) personnel, warehouse staff, and poll worker trainers.

As elections personnel become adept in running election with Verity, you can purchase additional training or “refresher” courses which are provided in the same professional manner as all other Hart training.

### **Training Materials**

Training courses include documentation/user guides, and a variety of other media, including graphic presentations. All these are designed with a single objective: to help trainees achieve proficiency and self-sufficiency in the tasks required to conduct a smooth, successful election with the Verity voting system.

In addition to providing training materials during scheduled courses, Hart supplies these materials in PDF format, for on-screen use or as-needed printing at any time. We also provide standard third-party manuals and paperwork/system documentation with the third-party hardware.

### **Planning the Training Program**

To tailor the standard curriculum to local requirements, the Hart trainer and project manager perform a training needs assessment as part of the implementation’s business process analysis (BPA) and variance analysis. The goal in performing this assessment is to identify how best to bridge the gap between existing elections procedures and training, and the requirements of the new Verity Voting system implementation.

After reviewing the findings of the training needs assessment and variance analysis, the trainer revisits the training plan from the original proposal in order to meet the customer’s training needs. Our experienced trainers then identify options for where, when, and how initial training services are conducted. Hart also offers options for follow-up training sessions, including onsite classes, training in Users Group meetings, computer-based instruction, or online training utilizing Web conferencing.

## Train the Trainer

Hart has presented Train-the-Trainer sessions in hundreds of jurisdictions across the country since 2002. We have trained hundreds of trainers and tens of thousands of poll workers. Our Train-the-Trainer program starts with all trainees taking the Polling Place Operations course, and then we dive into our training methodology, give trainees the knowledge of the voting system and electronic poll books that they need, go into the presentations and flow and agenda of the Polling Place Operations course, and finally practice, practice, practice training others.

## Staff Training

Staff training is a particular strength Hart brings to State implementation and ongoing operation of your new voting equipment.

Hart’s training program ensures that permanent and temporary elections office staff, technical troubleshooters and poll workers have the skills required to quickly get up and running with the new voting System – and the ability to provide ongoing, independent, consistently successful elections.

Every member of our friendly, knowledgeable training staff has experience in elections procedures, instructional technology, software application training, and working with adult learners from diverse backgrounds and with variable educational backgrounds. In addition, Hart’s comprehensive curriculum has been tested through many successful elections with millions of votes cast, helping ensure that the elections staff will be able to confidently implement, manage and operate the Verity voting system.

Hart will provide the following courses for elections staff:

Course	Description	Duration
System Administration	Elections staff managers and IT personnel learn how to manage Verity software user permissions and security and transparency options. Attendees also learn overall best practices for use with the Verity system and how to handle PC setup and software upgrades.	4 hours
Verity Data	Elections staff who will work with the Hart ballot production specialist learn how to import data, design, and lay out ballots according to State and jurisdiction guidelines and for the best voter experience.	2 days
Verity Build	Elections staff learn how to generate ballot databases, program/configure elections for Verity Touch Writer ballot marking devices, Verity Scan, and Verity Central, and print files for offsite printer(s). Elections staff also learn how to create polling place device media.	4 hours
Polling Place Operations	All attendees of any other course participate in the operational aspects of Verity Scan as they are used in the polling place.	2 hours
Assisting Voters with Disabilities	For elections staff trainers and any other attendees who want to know best practices for working with	1 hour

Course	Description	Duration
	voters with disabilities who use the Verity polling place equipment.	
Train the Trainer	Elections staff trainers who will train poll workers get methodology, skills and practice, practice, and practice teaching the Polling Place Operations course for poll worker audiences.	2 days
Verity Central (if needed)	Elections staff learn central scanning operations with high-speed scanners, and processing and adjudication of ballots according to applicable guidelines.	1 day
Verity Count	Elections staff learn how to perform logic and accuracy testing, tabulating results, and generating results reports and exports	4 hours
Support Procedures	Warehouse, management, and IT staff learn how to service and maintain the Verity equipment and system, including acceptance testing, regular equipment maintenance including device calibration, equipment troubleshooting, field and local help desk guidance, and more.	2 days

### Performance metrics for assessing competence

Verity’s Train-the-Trainer course materials include an optional competency quiz. Competency of the other curricula is covered with hands-on exercises during each course and a Mock Election, which is conducted after all training is complete.

### 131. Provide your detailed training plan for local officials who will operate your ballot counting device, including potential number of dates, number of classes, etc.

Please see #130 above for additional information regarding Hart’s training program.

Hart’s training program, designed by professional educators, enables all stakeholders to quickly and easily make the transition to the easy-to-use, easy-to-learn Verity system. Our training is based on a leadership strategy that comes from the adult education background.

Stakeholders in some of the largest voting jurisdictions in the United States have come up to speed quickly through our proven training approach and using our clear, concise education materials.

Hart’s effective curriculum and materials are designed around the following objectives:

- **Task-orientation.** Our curriculum is designed in modules that reflect specific tasks commonly encountered during pre-election ballot programming; testing; equipment preparation, deployment and setup; and tabulation and reporting of election results. Our step-by-step procedures support specific tasks required to use the Verity Voting system successfully and efficiently.
- **Hands-on methods.** Our courses are designed to optimize hands-on training methods; each module of training includes hands-on exercises.
- **Development of skills.** Instead of “telling,” we train. In other words, we teach skills and we test that learners have achieved a basic facility with them. Retention of

information and mastery of skills, which are key objectives of our training methodology, require a level of attention and care that goes beyond merely “telling.”

- **High activity level.** Our training curriculum is active, with a mixture of “classroom lecture” and “hands-on lab.” A variety of activities ensures that trainees remain engaged.
- **Repetition and practice.** Our training includes a separate simulation section during which trainees practice and review skills at their own pace. Written reviews are available as well.
- **Simulation of real-world procedures.** While training manuals are valuable resources, we are committed to training step-by-step procedures with materials, paperwork, and forms identical to those that will be used during real-world election operations. By gaining exposure to actual paperwork and procedures, elections staff, technical troubleshooters, and poll workers can feel more comfortable with the Verity Voting system and the associated New Hampshire elections-specific documentation.

Training courses include operations manuals, training manuals, and a variety of other media, including graphic presentations. All these are designed with a single objective: to help trainees achieve proficiency and self-sufficiency in the tasks required to conduct a smooth, successful election with the easy-to-use Verity system. New Hampshire voters will appreciate the illustrated, step-by-step instructions provided for casting their ballots on the easy-to-use Verity system.

Hart is well versed in using regional training approaches or singular jurisdiction training for Verity implementations. These approaches have proven successful in our statewide voting system rollouts or small, medium and large-scale jurisdiction rollouts. We will work with New Hampshire and its jurisdictions to determine and refine the approach that best serves Verity users.

During the Planning phase of implementation, Hart’s program manager will work with State Entity leadership to refine the plan for training, tailoring the standard curriculum to local requirements and defining which staff members should attend each course.

- a. Explain whether this training is included in the purchase price or if not the fee you will charge for this training.

Training is included in the initial project purchase price as part of Hart’s implementation service. Refresher training may be purchased for a fee anytime the jurisdiction deems additional training is needed.

**132. Provide examples of all training materials.**

Please see the Polling Place Field Guide and Training Course Packs included with this response.

**133. Describe your company's preventative maintenance on your vote counting device.**

Hart trains local jurisdiction technical staff to perform the simple, routine maintenance tasks during the Verity project implementation phase. Hart’s Verity documentation included with the implementation also provides step-by-step maintenance instructions.

Routine and preventative maintenance for Verity devices

Maintenance Type	Action	Frequency
Routine	Clean display	As needed
Routine	Clean scanner	Inspect/clean scanner after every 500 sheets
Routine	Calibrate touchscreen	Annually
Routine	Perform scanner calibration diagnostic procedure	Annually
Routine	Replace rechargeable backup battery	Every four years
Preventative	Replace coin battery in tablet	Every three years

**134. How do you handle service calls relative to a device being down during an election?**

Hart’s best practice is to recommend customers purchase a few spare devices so that possible catastrophic events are drastically minimized. Should the State and/or its jurisdictions decide to have spare precinct scanner devices, then the malfunctioning device may be immediately replaced with one of the spare devices.

Outside of the spare device methodology and if the State/jurisdiction has not arranged for onsite support, Hart’s Customer Support Center (CSC) should be contacted via our toll-free number. During major elections, Hart provides extended Customer Support Center hours. The CSC representative will partner with the jurisdiction to troubleshoot any issues.

135. What is your response time to fix a device or bring a replacement?

- a. On election day.
- b. At other times.

The Hart Customer Support Center (CSC) strives to exceed customer expectations, providing a level of service that is atypical in the election industry. Anytime a customer contacts our CSC with a technical issue – whether on election day or other times, our goal is to resolve the issue to the customer’s satisfaction as quickly as possible. Since the CSC handles all technical issues – from the simplest to the most challenging – the response time varies.

Regarding replacement devices, Hart’s best practice is to recommend customers purchase a few spare devices so that possible catastrophic events are drastically minimized. Should the State and/or its jurisdictions decide to have spare precinct scanner devices, then the spare device would be used for replacement.

136. Are on site, election day, responses included in the maintenance agreement? If not, what is the cost?

Hart’s project services included with the purchase of our Verity Voting system includes election day onsite support for the first election that the system is used. Onsite support thereafter is fee based, with the fee dependent upon the number of days onsite support is desired. Please see below for an example.

<b>First Election Day On-site</b>	Included
<b>Election Day On-site Services</b>	\$3,340 for 3 days (Election Day, day before, day after)
<b>Non- Election Day On-site</b>	\$2,000 per day

137. How do you handle doing annual service on your devices? Is that included in the service agreement?

Annual service on the devices is not needed, other than the preventative maintenance described in #133 above. The device warranty is one year after purchase date. Extended hardware warranties (EHW) may be purchased annually thereafter, if desired by the customer. EHW covers the repair and one-way shipping for any malfunctioning devices.

## WARRANTY AND POST WARRANTY

138. Describe all hardware and software warranty and post warranty maintenance and support options available for your proposed vote counting device solution.

The device warranty is one year after purchase date. Extended hardware warranties (EHW) may be purchased annually thereafter, if desired by the customer. EHW covers the repair and one-way shipping for any malfunctioning devices.

As part of the Verity Master Agreement, a copy of which is included with this response, Hart will ensure that the State receives service from the Hart Customer Support Center. While the Verity product is under warranty, the Verity hardware purchased will be free from defects in materials and workmanship and will substantially conform to the performance specifications stated in the product manuals. Hart will service any existing function that does not perform per the specifications of that product. While the product is under warranty, malfunctioning hardware will be returned to be repaired or replaced with a serviceable unit. The warranty does not cover damage resulting from abuse or use outside of prescribed operation.

Services during an extended warranty period continue at the same level as those in the original warranty. In all cases, Hart is committed to ensuring that the State's equipment will be fully operational during all election cycles while under warranty.

139. Define all consumables and proposed timeline for replacement.

Please see #68 above.

140. List any proprietary hardware and consumables that must be purchased specifically from the vendor.

Please see #68 above.

141. Describe the processes for returning, replacing, or repairing failed components of the proposed vote counting device.

All return/replace/repair requests begin with Hart's Customer Support Center (CSC).

If an equipment issue cannot be resolved via calibration or other maintenance steps, follow the steps below.

- 1) Contact Hart Support (1.866.ASK.HART)
- 2) If a problem cannot be resolved over the phone, and the equipment is determined to require repair by Hart, Hart Support will issue an Equipment Chain of Custody (ECC) form to the customer.



- 3) Upon receipt of the customer-completed ECC form, Hart Support will create a Return Materials Authorization (RMA) ticket, issue the ticket number to the customer, and email the shipping instructions and final ECC to the customer.
- 4) The customer ships the equipment to the repair depot.
- 5) When repairs are finished, the equipment is shipped back to the customer. Hart Support will notify the customer of the shipment.
- 6) Upon receipt of the returned equipment, the customer will have 7 days to perform an acceptance/functionality test on the equipment. Chain of custody and device seals should be verified upon receipt.

Hart provides customers with a consistent source for 24/7, real-time help from a knowledgeable customer support consultant via phone or email through our CSC and Hartline tracking system. Using these resources, the jurisdiction's elections staff can log problems and find their solutions, register change and enhancement requests, and submit equipment for repairs – any time day or night.

The Hart Customer Support Center staff is available live via phone from 7 a.m. to 7 p.m. Central time, Monday through Friday. You can also reach a representative outside of these hours by leaving voicemail. The receipt of a voicemail triggers a call-forward to a Customer Support Center staff member, so callers receive prompt service. During major elections, Hart provides extended Customer Support Center hours.

The jurisdiction's election staff can alert support personnel of issues or enter tickets into our Hartline online tracking system 24/7 via email. Hartline enables us to track issues, as well as equipment returned to us for repair.

## COST

142. What is the cost of your precinct count device, and what accessories are included in that price?

The current retail price for Hart's precinct scanner device is \$6,100.00 each. This price includes one precinct scanner, one collapsible ballot box, one set of privacy panels, one device battery, one power cord and one canvas bag for transportation/storage of the ballot box + privacy panels. The first-year annual license and support fee is \$170.80 per device.

- a. Does it include a maintenance agreement and if so for how long and what does it entail?

Hart's Verity Voting system does not need maintenance agreements. The warranty is one year after purchase date. Extended hardware warranties (EHW) may be purchased annually thereafter, if desired by the customer. EHW covers the repair and one-way shipping for any malfunctioning devices.

143. If you do not provide a single price in all circumstances, please explain your pricing program.

Hart's pricing program takes numerous factors into consideration including device quantities, quantity/type of consumables (i.e., media devices, ballot transport bags, etc.), desired professional services (training, onsite support, etc.), desired delivery schedule, etc.

- a. Is there a discount depending on number of machines purchased?

Yes.

144. For maintenance after the maintenance agreement included in the purchase price expires, what is the cost per year of your maintenance agreements per machine?

Hart's Verity Voting system does not need maintenance agreements.

Hart does charge an annual license and support fee. Annual licensing and support fees cover both minor and major software upgrades/modifications through the term of the agreement, as described in the sample Verity Master Agreement included with this response.

Options Hart offers for upgrading Verity Voting software include facilitating upgrades in compliance with New Hampshire law. The computers that the software runs on have easily-removable, sled-nested hard drives that simplify the upgrade process.

Upgrades that do not require Hart personnel onsite are included as part of the annual license and support fee. If the jurisdiction would like Hart onsite for an upgrade, there is a service charge for our onsite time.

Extended hardware warranties are available for a per device fee and may be purchased annually. Additionally, Hart offers customers the option to return malfunctioning devices as needed and be charged parts and labor for the repair.

**145. Is there a maintenance agreement discount for multiple machines?**

Hart's Verity Voting system does not need any maintenance agreements. Preventative maintenance can be performed by the jurisdiction.

**146. What is included in the maintenance agreement?**

Please see #145.

**147. What other supplies will be required for your machine and approximate costs? (i.e. thermal paper, batteries, how many seals, etc.)**

Please see #68 above.

**148. Are there any additional costs for using and maintaining your device that have not been addressed by these questions and your answers?**

Additional supplies that the State may choose to purchase for standard or improved processes or procedures are not included in the Q&A. The supplies may include items such as signage, tamper evident/security seals, supply or storage cases, etc.

149. What' is the total cost of your recommended "complete" package (computer, scanner, ballot box, memory cards/flash cards/sticks) plus maintenance costs (programming, service calls, training) for three years starting at the date of delivery?

The “complete” package price is dependent upon the device quantity, desired supplies/consumables, onsite service, printed ballot quantities, ballot programming and a variety of other factors.

Individual retail pricing for Hart’s Verity Voting system products and supplies can be found throughout the response. Below is a compiled list of most of the Verity products.

Product	Description	Current Retail Price (each)
Verity Scan + collapsible ballot box	Precinct scanner	\$6,100.00
Verity Touch Writer, includes voting device, printer, printer stand and booth	Accessible ballot marking device	\$5,300.00
Workstation + monitor	Workstation for software application(s)	\$5,900.00
Canon Scanner DRG-1100	COTS scanner for central scanning	\$7,500.00
Verity Data/Build	Ballot programming software application	Dependent upon quantity of registered voters
Verity Count	Tabulation and reporting software application	Dependent upon quantity of registered voters
Ballot Programming Services	Ballot programming + 1,000 printed ballots	Dependent upon number of races
vDrive	Removable media device	\$66.00
Key	Security token	\$109.00

150. What are other non-essential accessories that can be purchased, i.e. collapsible ballot box, flash drives, memory cards? What does each cost?

Please see #68 above.



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## CENTRAL COUNT/AUDIT

The New Hampshire Legislature is considering legislation that would require the Secretary of State to conduct a study of the use of ballot counting devices in a post-election audit. A premise of the test is that a ballot counting device would be used for the audit that is from a different manufacturer and vendor of any device used for the election night ballot count.

The legislation contemplates that ballots cast in a prior election would be used for this test. The process to be used likely will include identifying those ballots that are marked in a manner that require human adjudication. To the extent the results from your device show a different count from the election night count or from hand re-count results, it will be important to report how many ballots were marked in a manner that the ballot counting device used at the election should have reported a different result from that produced by the audit device count. This would include ballots where the ballot marking instructions were not followed, such as the oval left blank but the selected candidate's name is circled. The audit will need to distinguish ballots where a voter has marked the oval beside the printed name of a candidate and then written in the name of the same candidate on the write-in line for that office. The audit will need to distinguish ballots where a voter did not mark the oval beside the printed name of a candidate, but wrote that candidate's name in as a write-in.

We are particularly interested in learning how your central count/audit products will make such an audit count more effective and efficient. Were such audits to be required at future elections, we anticipate that the law will require the use of a ballot counting device from a vendor/manufacturer other than the vendor/manufacturer who provided the precinct ballot counting device used on election day.

New Hampshire law requires complex ballot column rotation on general election ballots. (RSA 653:1 and RSA Chapter 656) At Primaries, New Hampshire law requires name rotation when multiple candidates seek a party's nomination for the same office: Therefore, this post-election process will require that each distinct ballot to be tested be programmed in the ballot counting device. For example, if the test were of votes for the office of Governor at a general election on ballots from several polling places (precincts), a given candidates name could be in one of three different positions, depending on the column position rotation position used in a given precinct.

151. Please address the practicality of using your central count products in this circumstance.

Hart's central count system (Verity Central) can be used to audit ballots programmed/designed using Hart's software applications (Data/Build). Verity Central is purposely designed to accept ballots that have been programmed using only Hart software applications.

The following questions pertain to your software and hardware that is suitable for a central count/audit.

152. Is your central count system capable of being programmed to count a ballot created by a different vendor's system?

No. Hart's central count system (Verity Central) is purposely designed to accept ballots that have been programmed using Hart's ballot programming software application (Data/Build).

- a. If yes, but restricted to particular vendors, please list which vendor's system ballot your central count system can be programmed to count.
- i. The NH election management system (PCC product)?
  - ii. Microsoft Word?
  - iii. Adobe In-design?
  - iv. Any ballot in PDF form?

N/A

153. If the answer is "yes" in any of the circumstances listed, how is your central count system programmed for that ballot?

N/A

154. Does programming your central count device use data and oval position locations extracted from a pre-printed paper ballot?

Hart's central count system (Verity Central) uses data input/import from our ballot programming software applications (Data/Build). Templates designed by third parties can be imported into Verity Data.

Verity ballots include a rectangle for voter selections. The locations for rectangles and their orientations vary depending upon the contests on the specific ballot. Verity ballots do not include "timing marks" therefore, a rectangle can be placed anywhere within the margins of the ballot and the scanner will successfully "read" the rectangle.

155. Does programming require uploading XML or XY coordinate information?

No, Hart's ballot programming software applications (Data/Build) do not use coordinate information.

- a. If yes, please provide information on the format and data specifications for the file to be uploaded.

N/A

156. Can NH acquire the software/hardware required to program your central count device?

Yes.

- a. If yes, provide pricing information.
- b. If you program a ballot on a fee basis, provide pricing information.
- c. If the fee structure is other than a per ballot programming fee, for example if you use the number of registered voters as part of the fee determination, please explain how you would price programming a ballot in New Hampshire's central count audit circumstance.
  - i. One precinct's ballot might be voted on by 200 voters, the next by 12,000 voters. We expect the effort required to program both ballots would be the same.

Pricing for Hart's Verity Voting system software applications are based on the jurisdiction's number of registered voters (RV). An annual license and support fee is also charged. Current retail prices for each software application are reflected below.

Product	Up to 10,000 RV	10,001 – 50,000 RV	50,001 – 250,000 RV	250,001+ RV
Ballot Programming – standalone	\$15,000.00	\$30,000.00	\$40,000.00	\$50,000.00
Ballot Programming – networked	\$7,500.00	\$15,000.00	\$20,000.00	\$25,000.00
Tabulation and Reporting – standalone	\$6,000.00	\$12,000.00	\$13,500.00	\$15,000.00
Tabulation and Reporting – networked	\$3,000.00	\$6,000.00	\$6,750.00	\$7,500.00
Central Scanning – Client	\$4,375.00	\$8,750.00	\$12,500.00	\$15,000.00
Central Scanning - Server	\$17,500.00	\$35,000.00	\$50,000.00	\$60,000.00

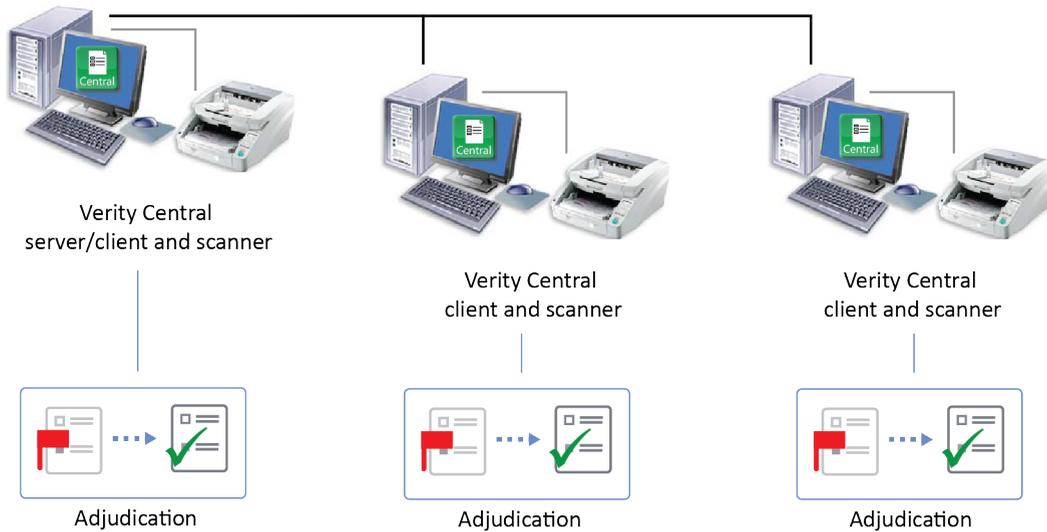
Hart’s Ballot Programming Services (BPS) Service Bureau fees are based on how many contests are included for that specific election. For example, an election with 1-5 contests may cost \$1,500.00. This price includes ballot layout, audio, proofs, programming and up to 1,000 printed ballots. Printed ballots desired beyond the initial 1,000 may be ordered for an additional fee. Current retail prices for the Service Bureau are reflected below.

Number of Races	Price
1-5	\$1,500.00
6-10	\$2,530.00
11-20	\$3,300.00
21-40	\$4,180.00
41-75	\$5,280.00
76-100	\$6,270.00

157. Please provide data the rate at which your central count device scans ballots?

- a. Assuming one sided 14-inch ballot, with over vote voter feedback turned off, how long would your device require to scan 1000 ballots, if they are fed in as fast as possible?
- b. Assuming one sided 18-inch ballot, with over vote voter feedback turned off, how long would your device require to scan 1000 ballots, if they are fed in as fast as possible?

Hart’s central count COTS scanner has throughput speeds of 100 pages per minute (1,000 pages per 10 minutes/6,000 pages per hour) regardless of ballot size, including ballots that have been folded, creased and/or wrinkled. Hart’s central count application (Verity Central) is primarily designed for by-mail/absentee ballot scanning therefore, voter intent issues are left to a ballot board or committee, not the voter, for determination. In addition, Verity Central is scalable, with the ability to accommodate multiple networked scanning client workstations, if desired.



Verity Central provides a flexible, streamlined workflow with powerful, transparent adjudication features. The County can easily add scanning/adjudication stations to increase throughput.

**158. If you have a central software package, what does that package contain and what is the cost?**

Hart's central count product (Verity Central) includes the software application installed on a workstation, monitor and a COTS scanner certified for use with the software (i.e., Canon DRG-1100).

The price for Hart's Verity Central software application varies dependent upon the jurisdiction's registered voters. Please see #156 above.

Current retail pricing for products used with Verity Central are:

<b>Workstation + monitor</b>	\$5,900.00
<b>Canon DRG-1100 scanner</b>	\$7,500.00
<b>vDrive (media device)</b>	\$66.00
<b>Key (electronic security token)</b>	\$109.00



159. Is the central count device only used at a central location or can it be used at polling place?

Hart's central count product (Verity Central) is designed for use at a central location however, it could be used at a polling place, although we are unaware of any customer using Central in the polling place. Please see below for additional information.

160. If the central count software can be used at a polling location for human adjudication of ballots, what would be necessary to use it, i.e. laptop, printer, etc.?

Hart's central count software (Verity Central) could be used at a polling location for human adjudication of ballots by a ballot board or other decision-making body (not an individual voter). At a minimum, products necessary for use are the software application (Central) installed on a workstation, monitor, a COTS scanner certified for use with the software (i.e., Canon DRG-1100), a media device (vDrive), and an electronic security token (Key).